DECEMBER 28, 1953

How Radio Keeps Trains Moving . . . p. 41

RAILWAY AGE

The Standard Railroad WEEKLY for Almost a Century

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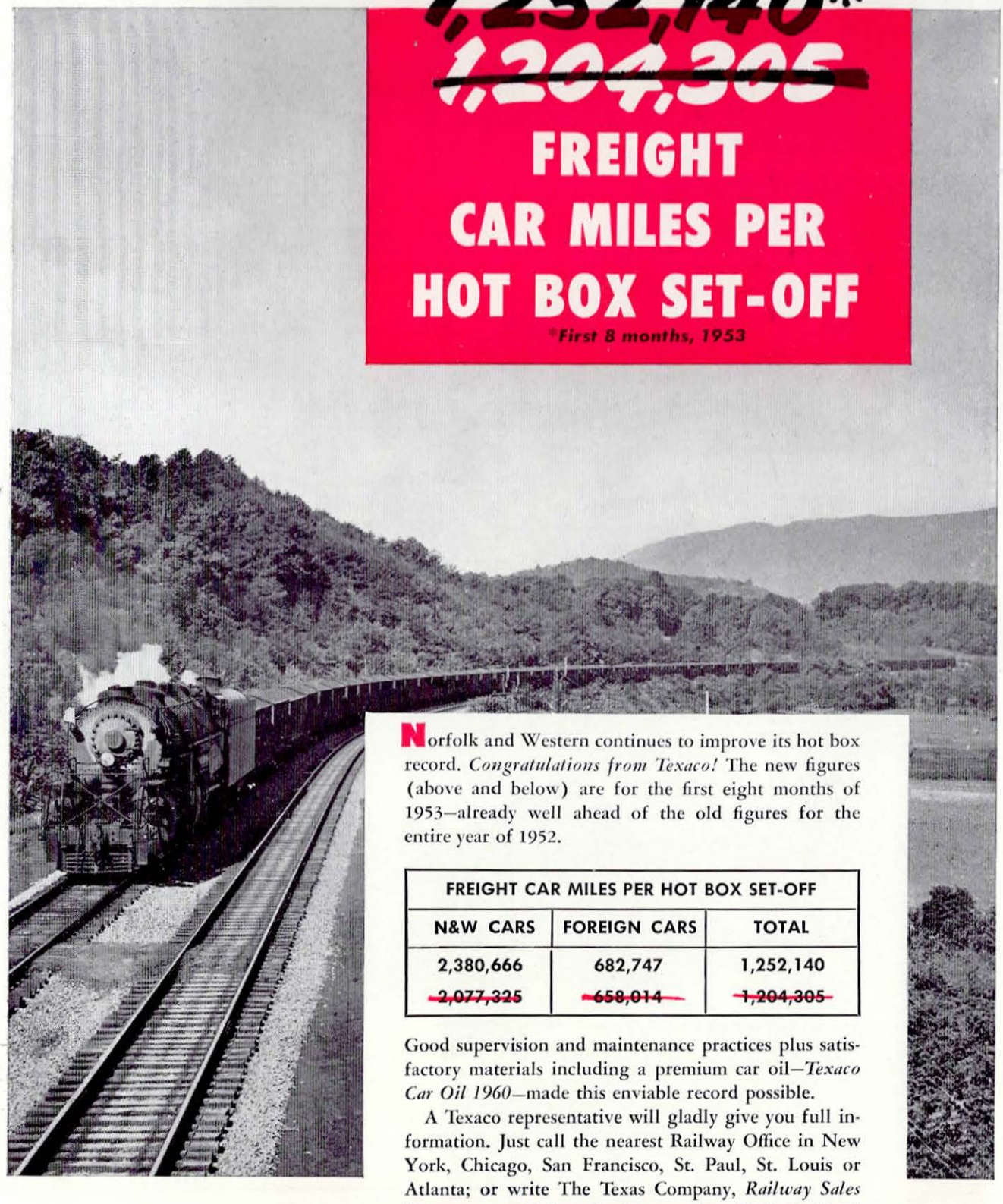
GENEVA COLLEGE

The Atlanta and West Point Rail Road Company, The Western Railway of Alabama, and Georgia Railroad now own a total of 43 General Motors Diesel locomotive units. These units handle all passenger trains and 95% of freight traffic on these lines. This dieselization has made possible an increase of 21% in gross ton miles per train mile and a decrease of over 30% in freight train operating costs per train-mile.

ELECTRO-MOTIVE DIVISION
GENERAL MOTORS

La Grange, Illinois • Home of the Diesel Locomotive
In Canada: GENERAL MOTORS DIESEL, LTD., London, Ontario

GENERAL MOTORS LOCOMOTIVES



1,252,140* ~~1,204,305~~ FREIGHT CAR MILES PER HOT BOX SET-OFF

*First 8 months, 1953

Norfolk and Western continues to improve its hot box record. *Congratulations from Texaco!* The new figures (above and below) are for the first eight months of 1953—already well ahead of the old figures for the entire year of 1952.

FREIGHT CAR MILES PER HOT BOX SET-OFF		
N&W CARS	FOREIGN CARS	TOTAL
2,380,666	682,747	1,252,140
~~2,077,325~~	~~658,014~~	~~1,204,305~~

Good supervision and maintenance practices plus satisfactory materials including a premium car oil—*Texaco Car Oil 1960*—made this enviable record possible.

A Texaco representative will gladly give you full information. Just call the nearest Railway Office in New York, Chicago, San Francisco, St. Paul, St. Louis or Atlanta; or write The Texas Company, *Railway Sales Department,* 135 East 42nd Street, New York 17, N. Y.

TEXACO

TEXACO Railroad Lubricants

AND SYSTEMATIC ENGINEERING SERVICE

IN ALL 48 STATES

Paying His Own Way and Still Going Strong!

By Hungerford

The idea for this cartoon, drawn by Mr. Hungerford, won a prize for

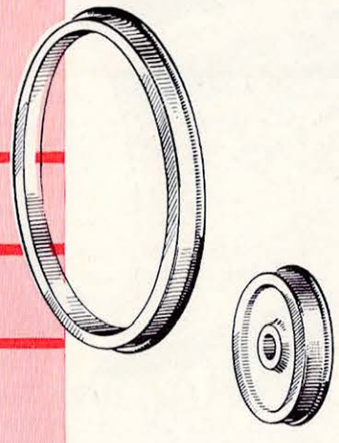
Mr.
CARLETON P. ADAMS

in the Edgewater Cartoon Idea Contest, held during the R.S.M.A. Convention at Atlantic City in June 1953.

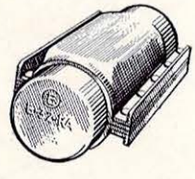
We will be glad to send you enlarged copies of this Hungerford cartoon (without advertising copy) for posting on your office and shop bulletin boards, or a cut for your company magazine, at cost.

EDGEWATER STEEL COMPANY

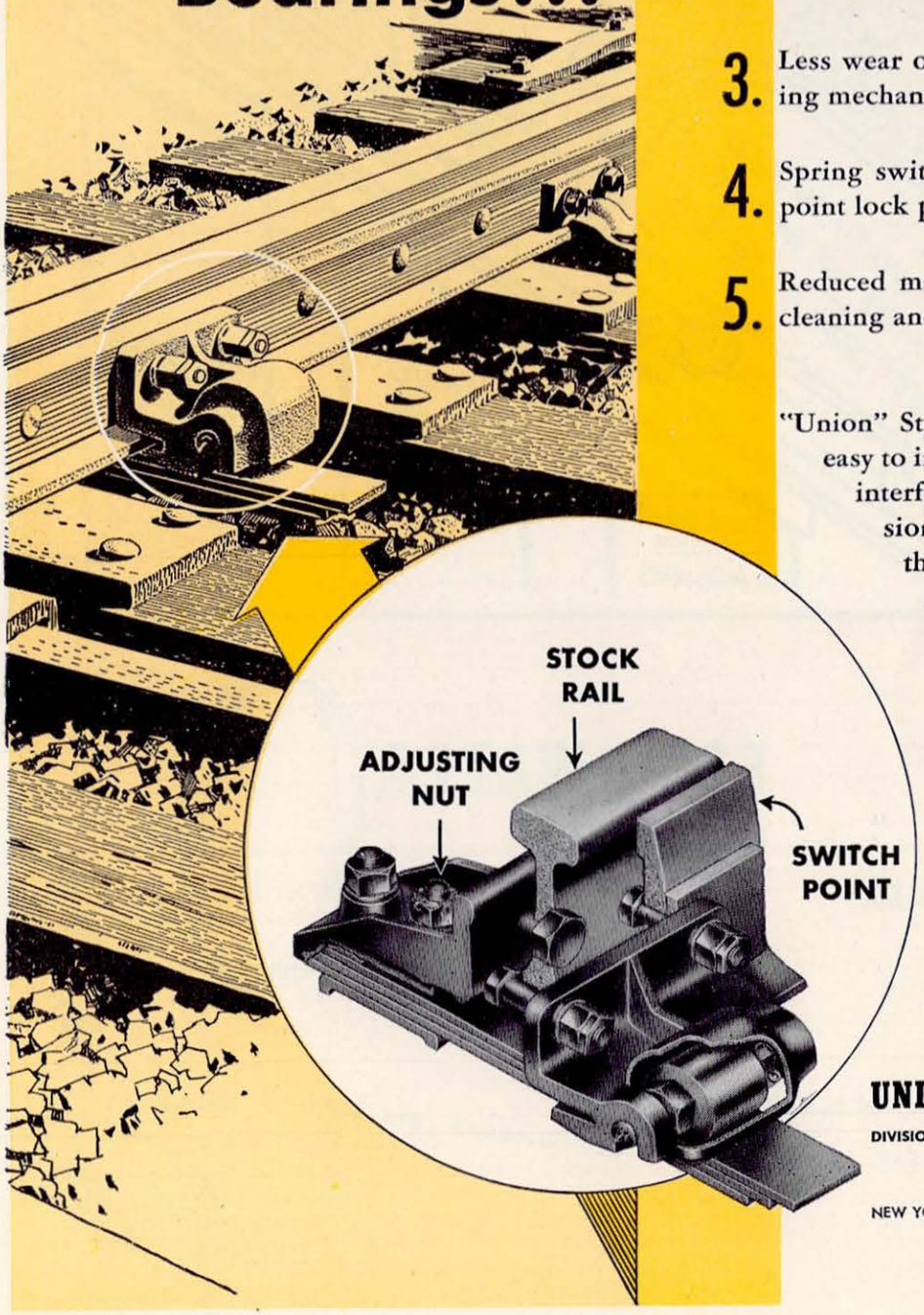
PITTSBURGH, PENNA.



SERVING AMERICA'S RAILROADS WITH ROLLED STEEL TIRES, WHEELS and DRAFT GEARS



IMPROVED SWITCH OPERATION *with* "UNION" Roller Bearings...



Here's What the Records Show!*

**Factual data supplied upon request.*

1. Force required to move switch points materially lessened.
2. Power consumption and operating time for power-operated switches reduced.
3. Less wear of connections and operating mechanism.
4. Spring switch and mechanical facing point lock performance improved.
5. Reduced maintenance costs . . . less cleaning and oiling required.

"Union" Style R Roller Bearings are easy to install and adjust . . . do not interfere with tie tamping. Occasional lubrication is about all the attention they require. Ask any "Union" district office for complete information.

UNION SWITCH & SIGNAL
DIVISION OF WESTINGHOUSE AIR BRAKE COMPANY
SWISSVALE PENNSYLVANIA
NEW YORK • CHICAGO • ST. LOUIS • SAN FRANCISCO

RAILWAY AGE

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Dec. 28, 1953 Vol. 135, No. 26

Week at a Glance

Railroad improvement programs will continue throughout 1954, A.A.R. President William T. Faricy declared in his year-end statement. In it, he also pointed out that "results of railroad operations in 1953 were strikingly similar, in most respects, to those of 1952," but that the year just ended was a record one in several categories. Gross revenues and operating efficiency reached new highs; so did expenses and peacetime taxes. 11

A 5-cent hourly pay increase for railroad trainmen went into effect December 15, following negotiations which probably set a new record for speedy completion —and which were likewise the first major wage negotiations in some years to have been settled without the necessity of government intervention. 11

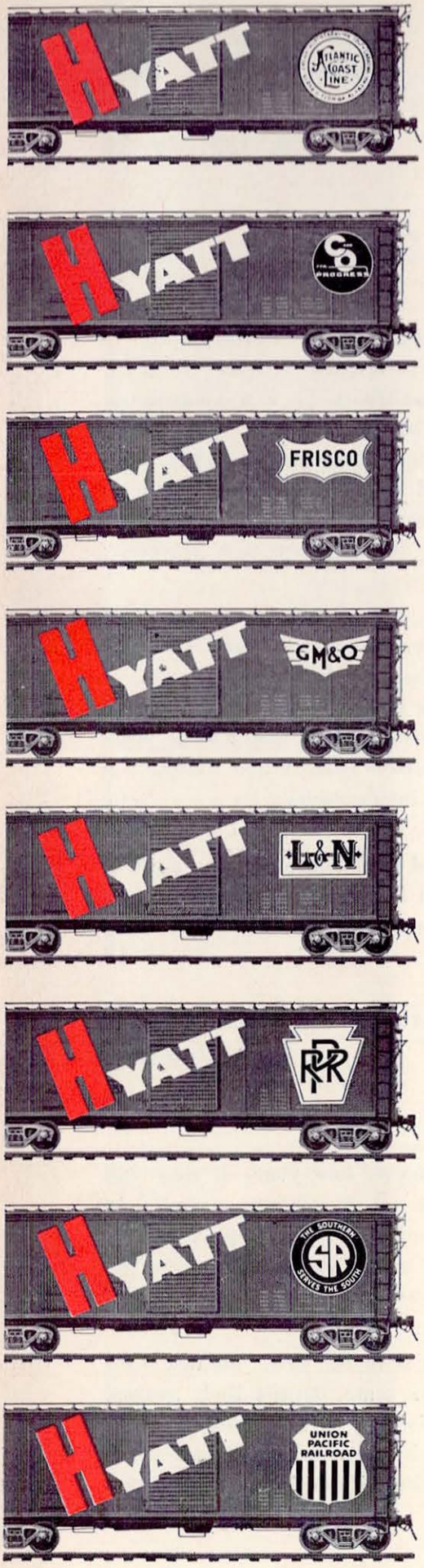
The "Do Not Hump" card is obsolete, in the opinion of shippers as well as of railroad men, according to a recent poll by our associated publication, *Railway Freight Traffic.* 13

Revenues and expenses of Class I railways for 1953's first 10 months. 23, 26, 27, 28

RAILWAY AGE FORUM

Railroads can have a happy new year—if they will exert themselves to reflect their superior economy in their pricing structure, and to awaken the public to the need for more intensive use of the great "natural resource" which the railroads really are. 39

The Long Island again is in the news, because various officials of New York State, despite their avowed belief in private enterprise, are actually compromising with socialism by acting in a way which, if successful, can only end in forcing the railroad into public ownership. 40



8 MORE RAILROADS choose Hyatts for freight . . . 1765 cars to serve America better!

Here's the record: During the past year, *eight* major railroads have ordered Hyatt-equipped freight cars! Once again, the railroads have shown that they're always alert to modernization—always ready to adopt a superior product if it will help them to provide more efficient transportation. And the superiority of Hyatt Roller Bearings (replacing old-style, friction-type bearings) *has* been proved—by years of excellent service on passenger cars and diesel locomotives! Now available for freight cars, Hyatts *eliminate the hot box problem*, and they mean smoother starts and higher running speeds—with less damage to merchandise and important savings in maintenance costs! When you think of railroad progress, think of HYATT—Running Mate of Diesel Freight!

HYATT ROLLER BEARING JOURNAL BOXES

HYATT BEARINGS DIVISION • GENERAL MOTORS CORP. • HARRISON, N. J.

Current Statistics

Operating revenues, ten months	
1953	$ 9,016,553,959
1952	8,738,507,372
Operating expenses, ten months	
1953	$ 6,780,942,483
1952	6,680,564,078
Taxes, ten months	
1953	$ 1,085,573,098
1952	1,048,218,626
Net railway operating income, ten months	
1953	$ 952,692,110
1952	856,877,240
Net income, estimated, ten months	
1953	$ 740,000,000
1952	630,000,000
Average price railroad stocks	
December 21, 1953	58.49
December 22, 1952	70.38
Carloadings revenue freight	
Fifty weeks, 1953	37,203,352
Fifty weeks, 1952	36,754,065
Average daily freight car surplus	
Wk. ended December 12, 1953	76,333
Wk. ended December 13, 1952	16,392
Average daily freight car shortage	
Wk. ended December 12, 1953	163
Wk. ended December 13, 1952	709
Freight cars delivered	
November 1953	6,137
November 1952	5,929
Freight cars on order	
December 1, 1953	31,869
December 1, 1952	87,657
Freight cars held for repairs	
December 1, 1953	97,679
December 1, 1952	96,085
Average number of railroad employees	
Mid-November 1953	1,188,269
Mid-November 1952	1,238,777

RAILWAY AGE IS A MEMBER OF ASSOCIATED BUSINESS PUBLICATIONS (A.B.P.) AND AUDIT BUREAU OF CIRCULATION (A. B. C.) AND IS INDEXED BY THE INDUSTRIAL ARTS INDEX AND BY THE ENGINEERING INDEX SERVICE. RAILWAY AGE INCORPORATES THE RAILWAY REVIEW, THE RAILROAD GAZETTE, AND THE RAILWAY AGE GAZETTE.

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Week at a Glance CONTINUED

A 98-mile radio installation keeps trains moving on the heavy-grade portion of the Southern Pacific's Shasta route between Eugene and Crescent Lake. 41

A new Rock Island diesel shop at Chicago, featuring carefully planned exhaust and air-intake and heating systems, proves that such a shop can have both good ventilation *and* adequate heating. 44

Non-destructive testing of axles, diesel parts, and similar materials has produced for the Pennsylvania "incalculable" benefits "in lives and money saved." 48

A new bearing which uses less oil, and permits locomotives equipped with it to operate between monthly inspections without addition of oil to axle caps, has been developed for General Electric's GE-752 traction motor. 50

Every hot box is investigated by the Norfolk & Western in a continuing system-wide campaign which has reduced the occurrence of hot boxes to less than one for every 1¼ million car-miles. 52

Eighty per cent of meets without stopping is a record made possible by a C.T.C. installation on 107 miles of Santa Fe single track between Bakersfield and Fresno yard. 55

BRIEFS

The term of Interstate Commerce Commissioner James K. Knudson expires this week. Mr. Knudson was appointed to the commission in 1950; and he will continue to serve after January 1 until he is reappointed or until a successor qualifies.

Railroad investment per employee is almost twice that of the country's manufacturing industries, David I. Mackie, chairman of the Eastern Railroad Presidents Conference, has pointed out. Mr. Mackie said average railroad investment after allowance for depreciation

Week at a Glance CONTINUED

amounts to $21,410 per employee, compared with a national average of $12,500 per employee for manufacturing companies.

Two Canadian railway wage disputes now pending will not be settled until the new year. The major case, between the railways and 150,000 non-operating employees, will go to a Conciliation Board early in 1954. There is no indication that settlement is near in the "jurisdictional" dispute between nearly 7,000 locomotive firemen and the railways and between union organizations.

Specially-designed wood-rack cars, which cost from $6,400 to $7,700 each, have become an important part of the fleet required to handle pulpwood traffic. This has been pointed up in an I.C.C. report on a pulpwood-rate case. The case's record made it "clear" to the commission "that the growing demand for wood-rack cars can no longer be met by converting obsolete box cars and flat cars which have lost their usefulness for other purposes."

New home?—Eight or ten of the Cleveland Union Terminal's electric locomotives—orphaned by recent discontinuance of all electric operation in favor of through operation of diesels—may be acquired by the Chicago South Shore & South Bend for freight service. These 2,300-hp. units are geared for 70-m.p.h. passenger operation and the South Shore will leave them that way. The reason: more train-miles per hour—an important factor when operating in and around the road's fast and frequent passenger trains.

An Alaska Railroad yardmaster, Andrew J. Hedges, has received a distinguished service citation from the Department of the Interior for "outstanding leadership and courage in directing switch crews who braved dense volumes of smoke and flames in their efforts to move 35 railroad cars, many loaded with valuable military freight, when fire swept through Port Whittier docks in Alaska last June." All but four of the cars were moved without damage, but Mr. Hedges suffered serious injuries by remaining at his post until the last possible moment.

It would take 37 trains, each consisting of 20 cars, with each car loaded with 50 tons of silver dollars, to carry the $1,262,000,000 which the railroads paid last year in federal, state and local taxes.

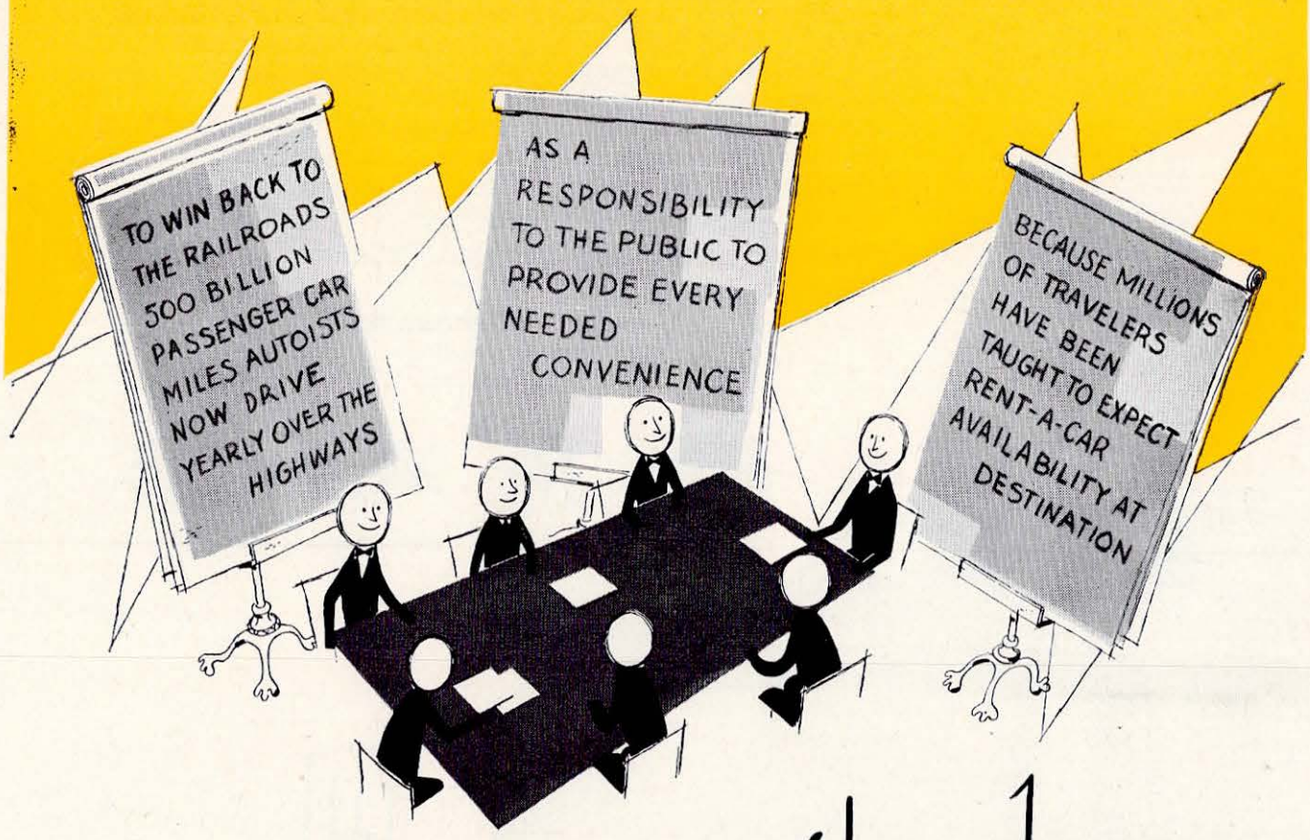
"We go either forward or backward; we cannot stand still. And the railroads propose to go forward, improving their service, engaging in competitive pricing research, in transportation research, and in scientific research, to the end that they may continue to produce better service to the public through methods and procedures that lead to more efficiency and economy and to reduce the evil of idle investment.

"The railroads hope that 1954 will bring long overdue revision of the outmoded regulatory procedure under which the industry operates. They seek to eliminate delays in making price changes, to acquire greater latitude in performing their managerial functions in a keenly competitive market, and to repeal or reduce excise taxes on transportation, especially the excessive excise tax now applying on passenger transportation, which was levied during World War II as a penalty to discourage passenger travel.

"There is a dynamic quality about the railroad industry, the potentials of which can be better realized by removing the shackles of 'horse and buggy' regulation of an outmoded monopoly era. In this advanced competitive era, regulation should not be imposed for regulation's sake, but should be only that which is required in the public interest."

—From a year-end statement by William White, president, New York Central.

Why alert rail management so aggressively promotes the HERTZ RAIL-AUTO PLAN


TO WIN BACK TO THE RAILROADS 500 BILLION PASSENGER CAR MILES AUTOISTS NOW DRIVE YEARLY OVER THE HIGHWAYS
AS A RESPONSIBILITY TO THE PUBLIC TO PROVIDE EVERY NEEDED CONVENIENCE
BECAUSE MILLIONS OF TRAVELERS HAVE BEEN TAUGHT TO EXPECT RENT-A-CAR AVAILABILITY AT DESTINATION

is your railroad doing its share?

What does it mean that at least 136 million miles were traveled on trains in 1952 by men and women who rented cars to drive at their destinations? Fifteen years ago there wasn't even 5% of that figure! Much of this developed during the past five years. Doesn't it mean just this: (1) That the Hertz-originated Rail-Auto Plan does work! (2) That Hertz' efforts launched on a grand scale in 1947, and the fine cooperation of most of the railroads in advertising and promoting the Rail-Auto Plan are paying off! (3) That in 1953 millions more men and women who now drive 500 million miles from city-to-city in their own cars . . . tiring, time-consuming, often hazardous miles . . . can be expected to change back to the trains because they can rent cars conveniently wherever they're going.

Are you doing your share to switch this traffic from highways to your railroad? Do you mention car rental availability in your own advertising, timetables and other literature? Do you encourage your ticket agents to profit with the 10% commission any Hertz station will pay them for car rental business, by asking every customer . . . "Shall I reserve a car for you at your destination?" If not, write us for convenient reservation forms, and worthwhile information. No obligation. Hertz, world's largest and finest rent-a-car organization, with more than 700 stations in over 500 cities through the United States, Canada, Alaska, Hawaii, the Virgin Islands, Cuba, Haiti, Mexico, Great Britain, Ireland and Switzerland, will cooperate with you in every possible way.

NEW HERTZ LOCATIONS IN MILWAUKEE, CHICAGO, CINCINNATI

To provide faster and more convenient service, Hertz has installed three new Rent-A-Car counters: in the Milwaukee Road Depot in Milwaukee; the Union Station in Chicago; and the Union Station in Cincinnati. In these cities passengers can step into a car within a few minutes after they get off the train. Hertz provides this service 24 hours a day, 7 days a week. This is the kind of service offered by the Hertz Rail-Auto Travel Plan that switches thousands of people from highway travel to rail travel . . . and brings millions of additional passenger miles to railroads.

Dept. D12, 218 S. Wabash Avenue,
Chicago 4, Illinois; phone: WEbster 9-5165

HERTZ *Rent-A-Car* **SYSTEM**

Split Second Time Table

ON TRUCK DROPS!

Now you can hold to a tight schedule on Diesel truck or wheel changes – making lay-up time a matter of hours instead of days! Whiting Drop Tables speed repair and maintenance on locomotives, coaches and tenders. They save manpower and help assure uninterrupted, *profitable* operation. *Engineered* and built to *specific* needs, over 500 Whiting Drop Table installations are serving railroads throughout the world. Capacities range from 10 to 150 tons – designed to the requirements of the most modern Diesel electric or steam shops.

Write today for a Whiting Drop Table Bulletin which shows a variety of applications.

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15603 Lathrop Avenue, Harvey, Illinois
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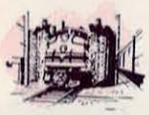

Train Washers

Body Supports

Electric Portable Jacks

Cross-Over Bridges

Trainmen Get 5-Cent Increase

Escalator clause ended, vacations lengthened, in speedy settlement by direct negotiation

Settlement of the wage dispute between the Brotherhood of Railroad Trainmen and the nation's railroads was completed at Chicago December 17, by an agreement which adds five cents an hour to present wage rates, and terminates the "cost-of-living" escalator provision which had been in effect since April 1, 1951. Wage increases totaling 13 cents an hour which have resulted from that escalator clause now become part of basic wage rates.

The agreement also provides for an additional week's vacation for trainmen with 15 or more years of service. This will extend their paid vacations to three weeks.

The wage increase, which became effective December 15, covers about half the total number of employees engaged in operation of trains.

Sets Speed Record—The agreement marks the first major railroad wage dispute that has been settled by direct negotiations since October 1948, when the railroads and the same organization disposed of a dispute around

1953 Results Were on 1952 Pattern

Operations strikingly similar in most respects, but last year brought some new railroad records; improvement programs will continue in 1954

By William T. Faricy
President, Association of American Railroads

Results of railroad operations in 1953 were strikingly similar, in most respects, to those of 1952. There was, however, a decline of nearly 7 per cent in passenger traffic and revenues. Freight carloadings for the year were slightly above those for 1952, although in the closing weeks of the year they were running about 10 per cent below those of the same period in 1952. These lower loadings are expected to carry through into the early part of 1954.

Railroad net income for the entire year rose an estimated 9 per cent above that of 1952 to approach the all-time high net of $902 million, which the industry earned in 1942. Significantly, the railroads in 1953 had to take in $3 billion *more* of gross revenue than in 1942 to wind up with the same amount of net.

***Return of 4.23 Per Cent*—Rate of return on the industry's net investment of more than $26 billion amounted to 4.23 per cent—up from 4.16 per cent in 1952 and roughly equal to the rate earned in the high postwar years of 1948 and 1950.**

Railroad freight traffic, estimated at 610 billion ton-miles, declined fractionally below that of the preceding year, while freight carloadings climbed above the 1952 total by a small margin to stand at 38,300,000 at the end of the year. A moderate decline in the average haul of freight accounts for the paradox of greater carloadings coming during a period of fewer ton-miles of transportation service.

The railroad industry set records during the year in several categories. Gross revenues totaled $10,746 million—up 1½ per cent over last year's total. This record was offset to some extent, however, by record operating expenses and by tax payments which exceeded those of any other peacetime year. Total operating expenses are estimated at $8.1 billion and taxes paid all levels of government at $1.3 billion.

***New Efficiency Peak*—Another record was set by the industry in the field of operating efficiency. The amount of transportation service performed each hour by the average freight train hit a new high—a tangible indicator of the greater operating economy being produced by the industry through its far-reaching postwar improvement program.**

That program was continued through 1953 with scarcely a pause. The railroads spent more than $1.2 billion during the year on new equipment, plant and facilities, making 1953 the sixth consecutive year in which railroad capital investment has topped the billion-dollar mark. Railroad spending for capital improvements since the end of World War II now totals more than $9 billion.

Equipment purchases continued to highlight capital expenditures in 1953. More than 2,000 new locomotive units—mostly diesel-electrics—and 80,000 new freight cars were installed during the year. Since some 55,000 old cars were retired, the year resulted in a net gain in the freight car fleet of about 25,000 units. In addition, large numbers of cars received heavy repairs which, in many instances, amounted to virtual reconstruction.

***Outlook for 1954*—Looking ahead to 1954, the railroads intend to continue their essential improvement program at the highest level which traffic, revenues and earnings will justify. Expenditures of about $800 million are already programmed for improvements of all sorts. It is thus possible that 1954 will turn out to be another one-billion-dollar year in this field, though the level of traffic will necessarily condition the extent of capital spending.**

Both passenger and freight traffic continue to be affected to an undetermined but substantial extent by the continuing application of federal excise taxes amounting to 15 per cent on passenger tickets and 3 per cent on freight charges. These taxes are highly discriminatory in that they are collected only from those who use public for-hire transportation and not from those using their own cars, trucks or barges. The taxes thus encourage use of private transportation and discourage use of railroads and other common carriers.

The additional problem of union demands for wage increases and enlarged fringe benefits which aggregate staggering sums confronts the railroads as they enter 1954. By agreement dated December 16, 1953, a settlement was consummated with the trainmen, representing about 10 per cent of all railway employees, for an additional wage increase of five cents per hour, and an additional week's vacation with pay (a total of three weeks) for those employees having 15 years or more of service.

The processes of collective bargaining, mediation and other procedures under the Railway Labor Act have not yet been exhausted as to the other railway labor organizations. To a great extent, the financial outcome of railroad operations in the new year will depend on the outcome of these procedures.

the bargaining table. It is also believed to set a record for speed, the settlement having been reached only seven days after negotiations began.

Negotiators pointed out also that the quick settlement of the current dispute is the first breaking away from government intervention in railway labor troubles in a period of four years. During that time disputes being handled on a national scale have invariably followed the various procedures provided by the Railway Labor Act, including mediation by the National [Railway] Mediation Board and, in emergencies, appointment of emergency boards by the President of the United States.

Chairmen of the railroads' regional conference committees were: For the East, James W. Oram, assistant vice-president, Pennsylvania; for the West, Daniel P. Loomis, chairman, Association of Western Railways; and, for the Southeast, W. S. Baker, assistant vice-president, Atlantic Coast Line. V. W. Satterwhite, W. J. Weil and W. M. Dolan, vice-presidents of the B.R.T., headed the trainmen's negotiators

Express Strikes Ended In Emergency-Board Case

The Brotherhood of Railway Clerks has ended the strikes of its members against the Railway Express Agency at Pittsburgh, Pa., Milwaukee, Wis., and Detroit, Mich.

The return to work came shortly after President Eisenhower issued his December 16 order creating an emergency board to investigate the wage disputes involved and other like controversies which had threatened to tie up express operations at 13 additional points. The emergency-board hearings in the case are scheduled to open in Chicago on January 4 but members of the board had not been named when this issue went to press.

Education

More Railroaders Finish at Harvard

Ten men from nine companies complete Advanced Management Program—New course to be offered

On December 11 another "class" of 10 railroad officers—along with some 140 management leaders from other industries — completed the 13-weeks' "Advanced Management Program" at Harvard Business School. (See *Railway Age*, April 9, 1951, page 38, for an outline of the nature of this course, and its objectives.)

Of the 10 railroad graduates, the eight appearing in the accompanying photograph (reading from left to right) are: A. Grayum Baker, vice-president and purchasing agent, Cotton Belt; Charles R. Martin, freight traffic manager, Erie; Robert J. Herring, comptroller, Denver & Rio Grande Western; Thomas B. Hutcheson, assistant chief engineer, Seaboard Air Line; Louis W. Menk, assistant general superintendent transportation, Frisco; Ernest S. Marsh, vice-president—finance, Santa Fe; Paul D. Robinson, superintendent, Southern Pacific (El Paso); and Lester A. Brockwell, eastern freight traffic manager, SP.

Other members of the railroad contingent at Harvard, not present when the photograph was taken, were Arthur J. Crookshank, assistant general freight traffic manager, New York Central, and Benjamin F. Dillingham, vice-president and general manager, Oahu Railway & Land Co. (Honolulu).

To Start New Program—These A.M.P. courses for business and industry executives are offered by the Harvard Business School in the fall and spring terms, enrollment being limited to approximately 150. The school will, this coming February, inaugurate another program for management people—in addition to the A.M.P. The new program will take students in February and, in a period of 16 months, will give them its regular course for the Master of Business Administration degree, which ordinarily occupies two full academic years. It is planned that the students from industry in this new program will, from February to August, complete the work done in the first academic year; being ready to take on the second year's work when it begins, in September.

It is the thought of those in charge that this longer course may be useful to a rather younger management group (not as far "up the ladder" on the average) as those who are attracted to the A.M.P. course.

One of the railroad group in the recent A.M.P. program — Vice-President E. S. Marsh of the Santa Fe—was elected president of the student body, the first time this honor has come to one of the railroad group. While attending the course, Mr. Baker, of the Cotton Belt, was advised of his election as a vice-president of his company, in addition to his previous position as purchasing agent.

Rates & Fares

Rate Cuts Proposed For Iron and Steel

Eastern railroads have before them a proposal for reducing by as much as 38% carload rates, within Official Territory, on a wide range of articles of iron and steel manufacture described in Alternate Agent Hinsch's freight tariff, ICC-4494. The new rates, if and when effective, do not apply on export, import and intercoastal shipments, or on traffic subject to fabrication-in-transit. Slightly different rate scales are set up for movements within Trunk Line and Central territories, with Central territory rates, as at present, somewhat lower than those in Trunk Line. Trunk Line rates will apply between Central and Trunk Line-New England territories and between Trunk Line and New England.

Different scales are applied to carload minima of 40,000 lb. and 80,000 lb., respectively, with the smaller minima taking the larger cuts.

PRESENT AND PROPOSED RATES
($ per cwt.)

Miles	40,000 lb. carload min. Present	Proposed*	80,000 lb. carload min. Present	Proposed
100	$.368	$.23	$.23	$.18
250	.506	.37	.403	.32
500	.771	.62	.621	.57

*Including all increases.

I.C.C. Approves Change In Mail-Pay Formula

The Interstate Commerce Commission has approved modifications in that phase of the railroad mail-pay formula which relates to methods of determining compensation for terminal services on and after July 1, 1953.

The changes were agreed upon by the railroads and Post Office Department, and the commission's approval came in its third supplemental report in the mail pay proceeding (No. 9200). The report said that the modifications were designed to remove difficulties in computing the terminal charges insofar as they apply to loading and unloading services.

Competitive Transport

Truck Tonnage Reaches New 3rd-Quarter Peak

Class I intercity motor carriers hauled more tonnage in the third quarter of 1953 than in the like period of any previous year, according to the American Trucking Associations.

The 54.7 million tons handled this year was 11.5 per cent above the same period of 1952, A.T.A. reported. This calculation was based on returns from 1,433 common and contract motor carriers.

Using 1941 as a base of 100, the 1953 third-quarter index stood at 241, a new high for the period. A.T.A. said tonnage increases in the July-September period of 1953 were reported from all sections of the country.

Water Contract Carriers Don't Have to File Pacts

The I.C.C. has again ruled that contract carriers by water do not have to file copies of their contracts, charters or agreements with the commission. The decision was handed down in a proceeding docketed as Ex Parte No. 161.

Railroads and common carriers by water had asked for reconsideration of a 1946 decision in which the filing of the water carrier contracts was found to be unnecessary. These carriers claimed the minimum rates published by water contract carriers are often "paper rates" which discourage competition and are a "depressing factor" in the rate structure.

The defendant contract carriers claimed the commission could obtain better results by individual investigation and policing of contract carriers rather than by subjecting the entire industry to more regulation.

Division 1 concluded that contract carriers are not causing "substantial distress" to other carriers. It said there has been no general failure to file minimum rates and charges that are actually being charged. The division noted that permits are now held by 41 contract water carriers, but a "number" of these are not in operation or engage solely in non-regulated services.

Operations

Shippers Agree . . .

"Do Not Hump" Card Is Obsolete

Three-quarters of those answering *Railway Freight Traffic* poll feel retarder yards justify discontinuance, but most favor substitute warnings

Echoing the recently expressed opinion of railway operating men, shippers agree that the "Do Not Hump" card should be dropped.

While there is still a shipper minority (about 25 per cent) which favors the old type card, most of them now seem to feel that, in view of the careful handling given shipments at modern retarder classification yards, some other type of warning card should be substituted—one that would carry a note of caution effective under all circumstances.

These are some of the findings of *Railway Age's* companion publication, *Railway Freight Traffic*, in its current monthly traffic poll of industrial traffic managers and chamber of commerce traffic directors, coast to coast. What railroad men themselves think about the "Do Not Hump" card was detailed in the November 23 *Railway Age*, page 16.

Three-quarters of *Railway Freight Traffic's* poll panel voting on the question wanted to see the present cards discontinued. All but about 15

TOUGH ASSIGNMENT.—Two specially equipped diesel locomotives have taken over operation of what is perhaps the steepest standard-gage railroad grade in North America—Madison hill, on the Pennsylvania's Columbus-Madison (Ind.) branch. Here one of the two Electro-Motive SD-7's eases a short freight train down the 7,012-ft., 5.89-per cent incline, as operating and mechanical officers watch the performance. Equipment on the two 1,500-hp. locomotives includes dynamic brakes that utilize all six traction motors; wheel-slip control with automatic sander; a railroad-designed rail cleaning device; and hump control, which permits enginemen to control tractive force in fine variations to match adhesion conditions of track, thereby preventing wheel slip and loss of power.

per cent of the "abolitionists" wanted, however, some sort of a substitute card indicating either the commodity — "Glass!" "Explosives!" etc. — or cards of information, such as "Fragile!" The general feeling was that cards of this sort would aid railroad yard men in their effort to combat careless handling and avoidable damage claims.

The remaining 15 per cent of the "abolitionists" generally felt that *any* type of card tends to hold up switching and thereby hinder service. They agreed, however, that modern retarder yards are less likely to produce damage than are other switching operations.

A great many of the pollees urged that railroads continue their educational efforts among switching personnel, feeling that this constitutes one of the most effective means of damage prevention.

Gass Calls Installation Of Big Box Cars "Timely"

Installation of more than 500 large capacity box cars in November constituted a "timely addition" to the freight car fleet of Class I railroads, A. H. Gass, chairman of the Car Service Division, Association of American Railroads, reported last week.

Requirements for ordinary size box cars have declined seasonally, but demand has remained strong in the case of 50-foot box cars and cars classified for high grade commodity loading, Mr. Gass said.

The C.S.D. chairman reported on the equipment picture in "The National Transportation Situation," a regular publication of the division.

Class I roads installed a total of 5,278 freight cars during November, and an additional 350 cars were placed in service by subsidiary car lines, Mr. Gass said. He added that retirements by Class I carriers and the subsidiary car lines were, on the whole, "below normal" for November. These retirements totaled 3,581 cars.

Car Ownership Gains. — "The serviceable (freight car) fleet on December 1 was slightly above the November 1 level and 19,862 cars greater than a year ago," Mr. Gass continued. He said there was an increase in unserviceable ownership during November, but the increase was entirely in cars needing only light repairs.

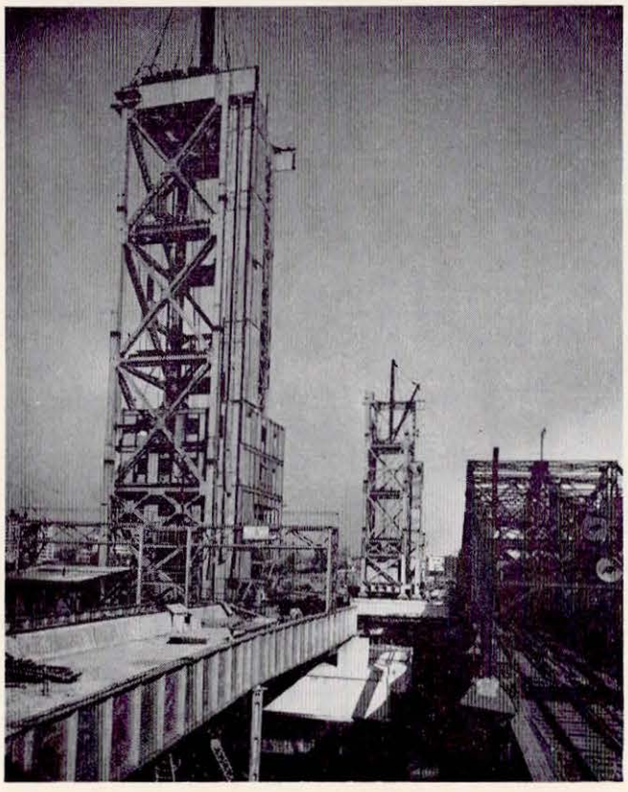
Turning to his regular review of the car supply, Mr. Gass said most types of freight cars are plentiful. He called the present hopper supply "adequate for all needs," and he said there have been only "a few isolated shortages" of gondolas in the past two weeks.

Requirements for plain flats are being met, he added, although the supply continues "tight" in the Pacific Northwest. In the case of covered hoppers, many roads are reporting surplus cars.

The C.S.D. chairman noted that agricultural crop production in 1953 is expected to be the third largest on record. He said the record stock of agricultural products "indicates a potential heavy demand later" for box cars. Meanwhile, most areas are reporting a surplus of ordinary box cars.

As to freight car detention, Mr. Gass said the usual checks indicated that 16 per cent of cars placed in November were detained beyond the free time of 48 hours. This compared with October's 16.61 per cent, and 16.9 per cent in November of last year.

Net ton-miles per serviceable car per day averaged 1,018 in October, against 1,034 in the same month of 1952.



NEW YORK CENTRAL'S NEW FOUR-TRACK, TWIN-LIFT bridge over the Harlem river between Manhattan and the Bronx is nearing the halfway mark toward completion. The towers shown here rise 219 ft. above the river and will support one of two 340-ft. lift spans that will carry some 525 commuter and long-distance passenger trains daily on trips to or from Grand Central Terminal. This span is scheduled to go into service in 1954. Similar towers to be erected just east (to the right in the picture), of these will support the second span, to be completed in 1956. The new bridge, costing $18,000,000, will replace the old swing bridge at the right.

Figures of the Week

Freight Car Loadings

Carloadings for the week ended December 19 were not available when this issue went to press.

Loadings of revenue freight for the week ended December 12 totaled 651,951 cars; the summary for that week, compiled by the Car Service Division, A.A.R., follows:

REVENUE FREIGHT CAR LOADINGS
For the week ended Saturday, December 12

District	1953	1952	1951
Eastern	112,103	125,775	126,612
Allegheny	126,737	144,057	154,350
Pocahontas	47,485	56,316	65,813
Southern	117,311	131,250	138,012
Northwestern	73,745	81,670	78,290
Central Western	116,666	122,418	126,745
Southwestern	57,904	59,856	63,372
Total Western Districts	248,315	263,944	268,407
Total All Roads	651,951	721,342	753,194
Commodities:			
Grain and grain products	42,645	46,746	51,350
Livestock	9,310	10,195	9,651
Coal	119,409	141,161	165,333
Coke	11,112	14,845	16,787
Forest products	38,963	43,856	46,696
Ore	16,852	21,072	18,155
Merchandise l.c.l.	62,761	70,693	70,344
Miscellaneous	350,899	372,774	374,878
December 12	651,951	721,342	753,194
December 5	662,035	719,324	773,520
November 28	596,230	670,371	821,776
November 21	725,732	811,073	711,447
November 14	727,058	828,750	814,258
Cumulative total 50 weeks	37,203,352	36,754,065	39,325,812

In Canada.—Carloadings for the seven-day period ended December 7 totaled 74,502 cars, compared with 91,950 cars for the previous nine-day period, according to the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada:		
December 7, 1953	74,502	28,179
December 7, 1952	83,947	30,496
Cumulative Totals:		
December 7, 1953	3,768,446	1,527,094
December 7, 1952	3,910,628	1,627,986

Supply Trade

George R. Forbes, Jr., has joined the New York sales staff of **L. B. Foster Company.**

Jack L. Mustard, assistant sales manager of **Ex-Cell-O Corporation's** Precision Products division, has been named assistant general sales manager of the Industrial division.

DONALD L. HARWOOD, manager of materials and schedules at the Beloit, Wis., works of Fairbanks, Morse & Co., who will become general purchasing agent at Chicago on January 1.

The **West Disinfecting Company,** railroad department, is expanding its sanitation, maintenance and employee hygiene services for southern railroads, and has appointed **William R. Rodgers** as district specialist, at Richmond, Va.

Victor E. Rennix, regional sales manager of the **Electro-Motive Division** of **General Motors Corporation,** has been promoted to general sales manager at Chicago, succeeding **W. N. Fritts,** transferred to special

Victor E. Rennix

duties. Named to succeed Mr. Rennix is **George W. Rukgaber,** district sales manager at Chicago. **Charles L. Moss,** district sales manager at New York, has been promoted to regional sales manager at Jacksonville, Fla., succeeding **A. O. Myers,** who has been named industrial sales engineer at LaGrange, Ill.

OBITUARY

E. J. Fuller, retired vice-president and general manager of the Hunt-Spiller Manufacturing Corporation, died December 3.

New Facilities

Canadian National.—Contract for a 226-ft. extension to the freight warehouse at Prince George, B.C., has been awarded to the Dominion Construction Company, Vancouver. The extension will double the size of the warehouse.

Rutland.—Construction of a new one-floor office building in Rutland, Vt., to house all offices of the railroad, will begin early next year. Work on the new building, to be located in space now occupied by the coach shop (which will be moved to the machine shop area), is to be completed about May 1, 1954. More than $10,000 a year rent now being paid for office space in the city will be saved.

Western Maryland.—New projects contemplated at the Port Covington (Baltimore) harbor terminal facility include: Extension of present Pier 9 by 473 ft. on the land side and 353 ft. on the water side to make present apron 1,200 ft. long, and construction of a one-story 200-ft.-wide shed on the extension; construction of a 60-ft.-wide extension to present shed on Pier 9; widening of single-track aprons on Piers 8 and 9 to double-track aprons; necessary paving; and clearing area west of Hanover street and south of WM tracks for constructing track. These projects depend upon satisfactory conclusion with the city of Baltimore of a contract which would include financing of additional property to be leased by the city to the WM at Port Covington. It is hoped work can be started next spring.

Equipment & Supplies

PASSENGER CARS

The **Canadian National** has ordered 57 first-class coaches from the Canadian Car & Foundry Co. at a cost of $7,486,000.

LOCOMOTIVES

Class I Roads Install 151 Locomotives in November

Class I railroads in November installed 151 new locomotive units, of which 150 were diesel-electric and one steam, the Association of American Railroads announced last week. In October, 156 new locomotive units were put in service; all were diesel-electric except for one steam. Class I railroads installed 198 locomotive units in November 1952, of which 196 were diesel-electric and two steam.

New locomotive installations in the first 11 months of 1953 totaled 1,990 units, of which 1,972 were diesel-electric, 14 steam and four gas turbine-electric. In the same period in 1952, Class I railroads installed 2,865 new locomotive units, of which 2,840 were diesel-electric, 17 steam, two electric and six gas turbine-electric.

Class I railroads had 660 new locomotive units on order December 1, compared with 630 on November 1. New locomotive units on order December 1 included 634 diesel-electric, one steam, 10 electric and 15 gas turbine-electric. On the same date last year, the railroads had 911 units on order; of these, diesel-electric units totaled 865, steam 17, gas turbine-electric 19 and electric 10.

The **Baltimore & Ohio** has ordered six 1,200-hp. switching units from the Electro-Motive Division of General Motors Corporation. The new switchers, scheduled for delivery this month, will replace all steam locomotives in switching service at Keyser, W. Va., and Piqua, Ohio, and will bring the B&O's roster of diesel power to 854 units. After delivery, 77 per cent of the road's freight service will be diesel-powered, and 70 per cent of its passenger-train miles and 67 per cent of its yard switching will be operated with diesels.

The **Toronto, Hamilton & Buffalo** has ordered three 1,750-hp. diesel passenger units from General Motors Diesel, Ltd., for its Buffalo, N.Y.-Hamilton, Ont., service. Delivery is expected next February 1, after which the TH&B will be 75 per cent dieselized.

Financial

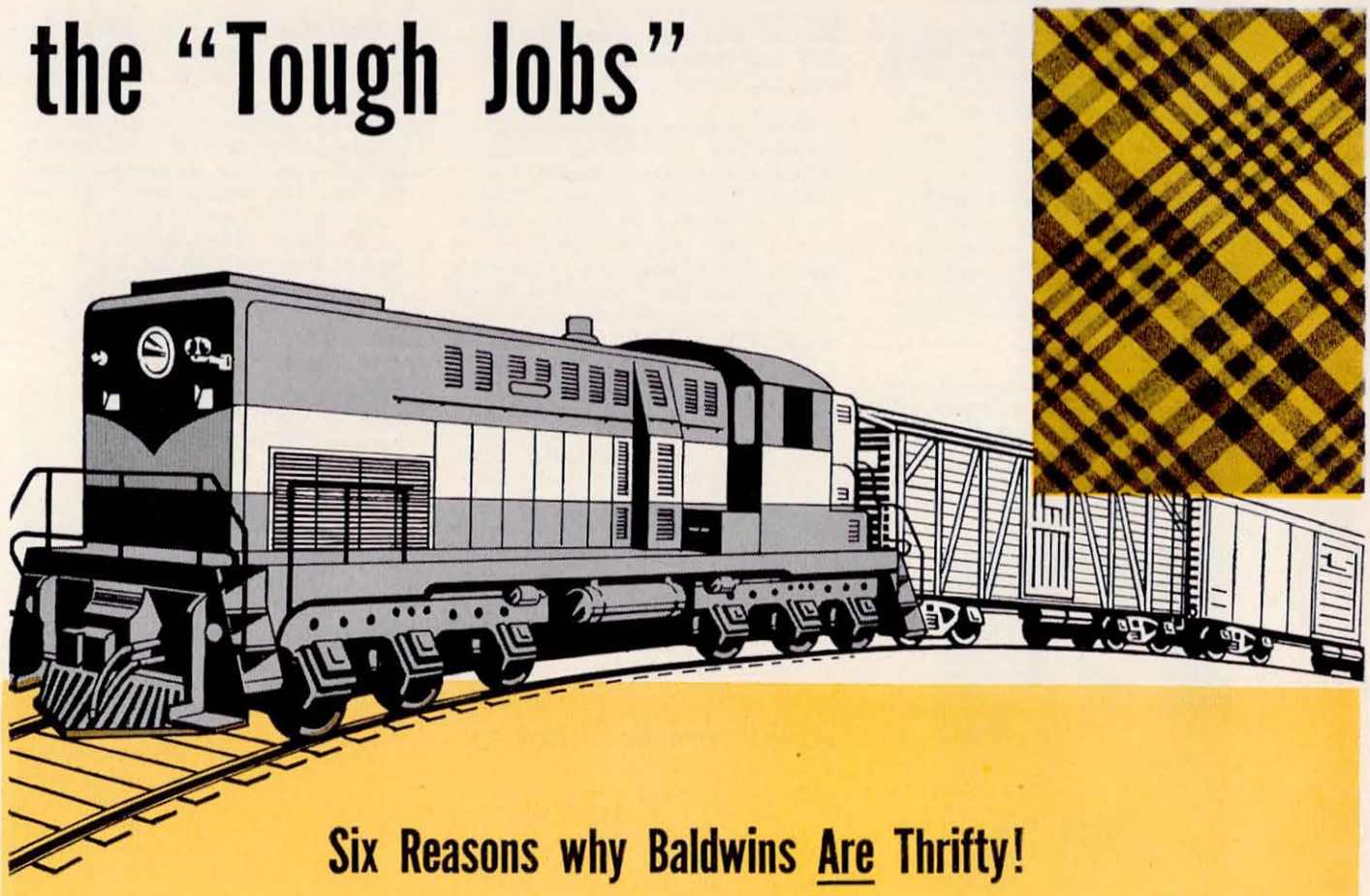
Chesapeake & Ohio.—*Trackage Rights.*—This road has applied to the I.C.C. for authority to acquire trackage rights over approximately 3.3 miles of the Chicago & Western Indiana, between Pullman Junction and 80th Street in Chicago. The C&O would pay rental of $3.00 a train-mile for use of the C&WI trackage, and the initial agreement would be for one year.

Chicago Great Western.—*Relief from Competitive Bidding Requirements.*—This road has asked the I.C.C. to authorize the private sale of $6,000,000 of collateral trust bonds. The bonds, dated as of July 1, 1953, would be sold for not less than 99 with an interest rate not to exceed 5½ per cent. The Great Western first planned to issue and sell these bonds in March of this year, but received no bid which it considered acceptable. The road told the I.C.C. it believes the bonds can now be sold on favorable terms to a private investor.

Proceeds from sale of the bonds

(*Continued on page 62*)

Thrifty Baldwins Consistently Get and Adequately Handle the "Tough Jobs"



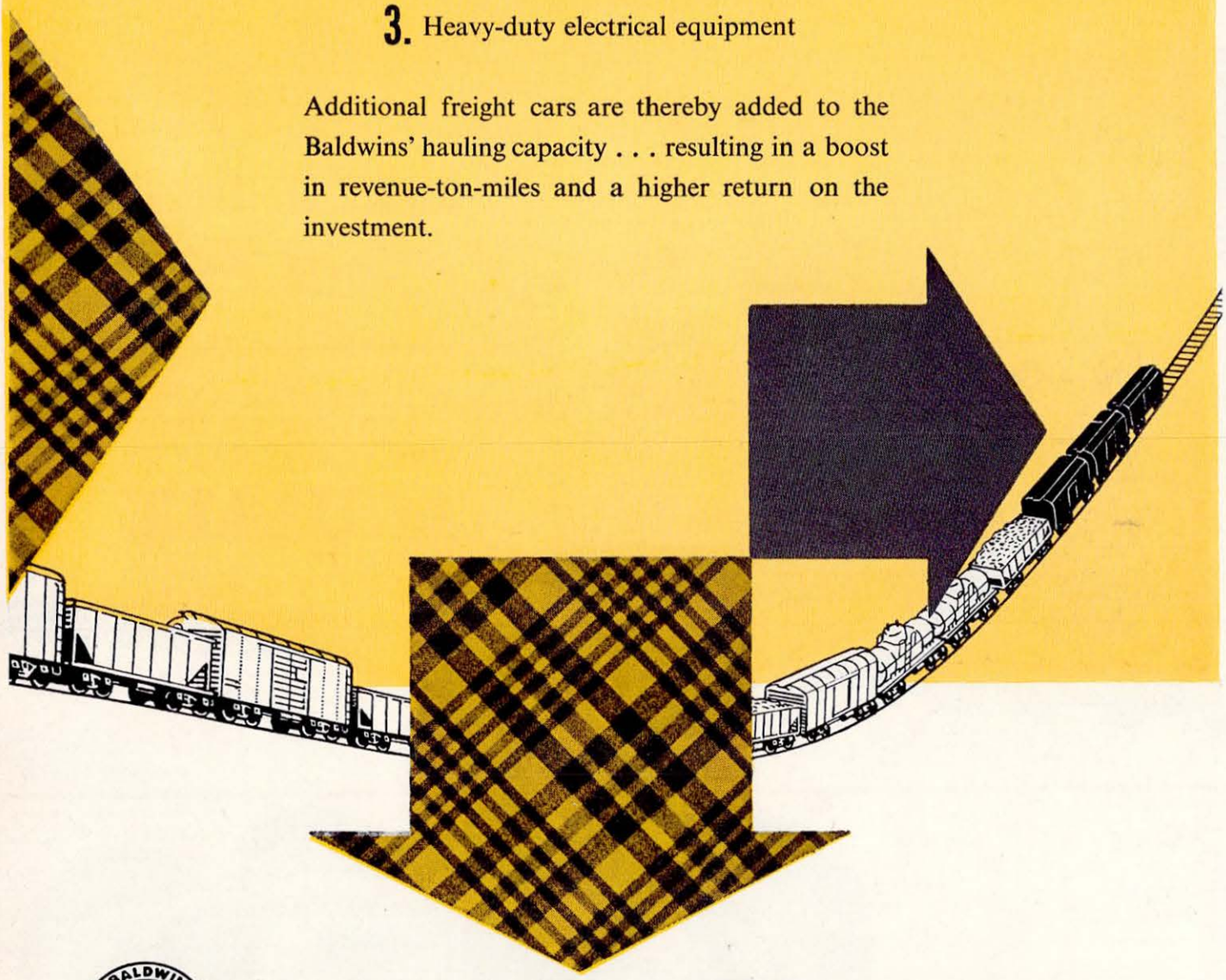
Six Reasons why Baldwins Are Thrifty!

1. Baldwins give as much as 8% more miles per gallon of fuel.
2. They consume up to 33⅓% less lube oil.
3. 5 to 15% fewer diesel engine and electrical parts decrease wear, replacement, and maintenance costs, and increase availability.
4. The Baldwin-Westinghouse system of dynamic braking has braking capacity which exceeds that found in the majority of today's locomotives—in some cases by as much as 50%—meaning less wheel and brake shoe wear, better control.
5. They have the weight and controls that can increase hauling capacity up to 3 additional freight cars in the tough assignments.
6. Standardizing on Baldwin-Westinghouse renewal parts ensures finer quality and service for trouble-free performance and peak availability.

3 factors give Baldwin-Westinghouse diesels higher tonnage ratings in the tough assignments:

1. Their greater weight
2. Pneumatic throttle control
3. Heavy-duty electrical equipment

Additional freight cars are thereby added to the Baldwins' hauling capacity . . . resulting in a boost in revenue-ton-miles and a higher return on the investment.



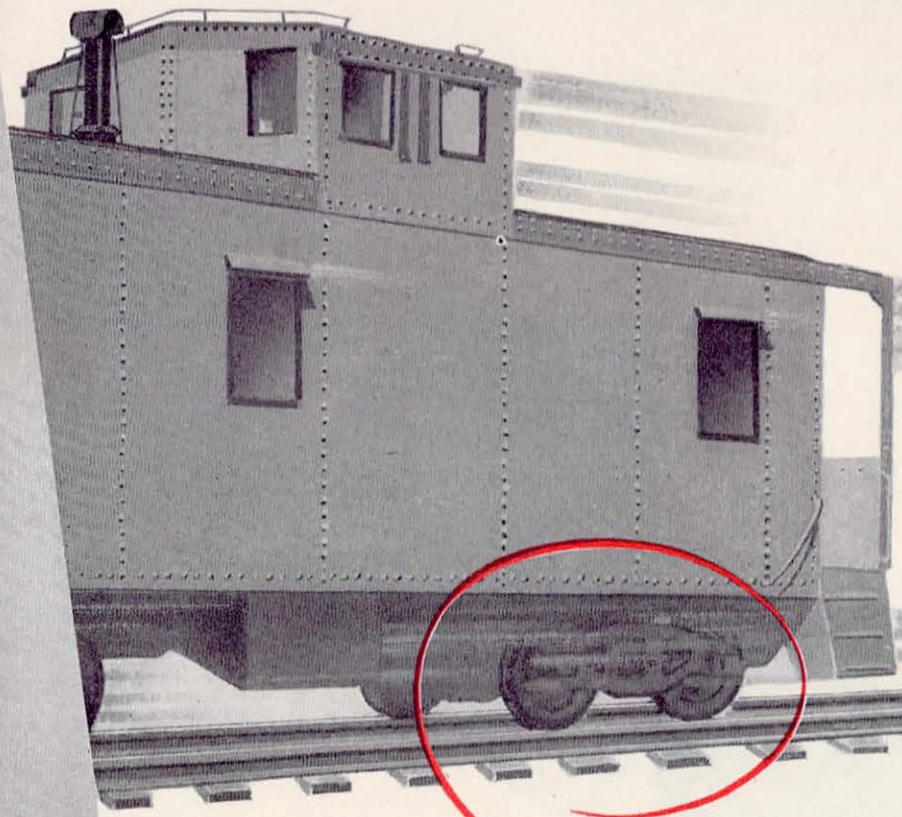
BALDWIN-Westinghouse

DIESEL-ELECTRIC LOCOMOTIVES

. . . . they're thrifty

MODERN HIGH-SPEED, EASY RIDING

CABOOSE CAR TRUCKS



BARBER-BETTENDORF

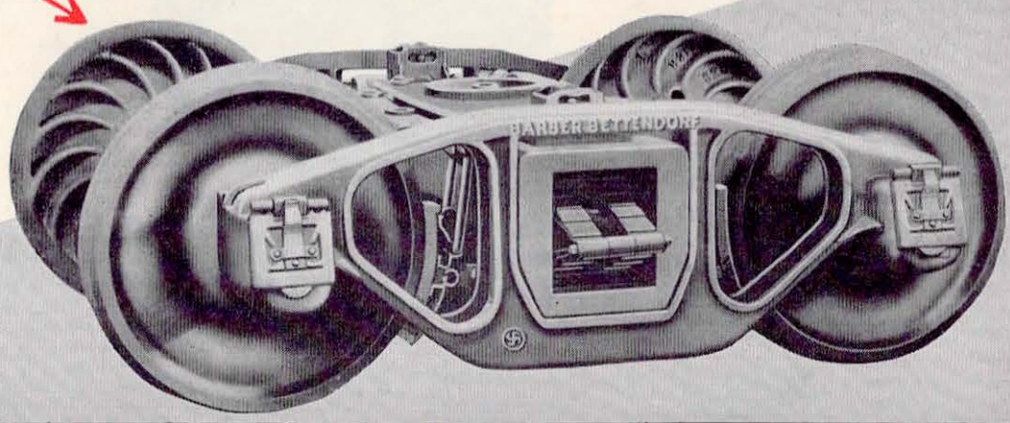
Swing Motion

CABOOSE CAR TRUCKS

•

ANOTHER OF THE
FINE TRUCKS CAST BY

SCULLIN

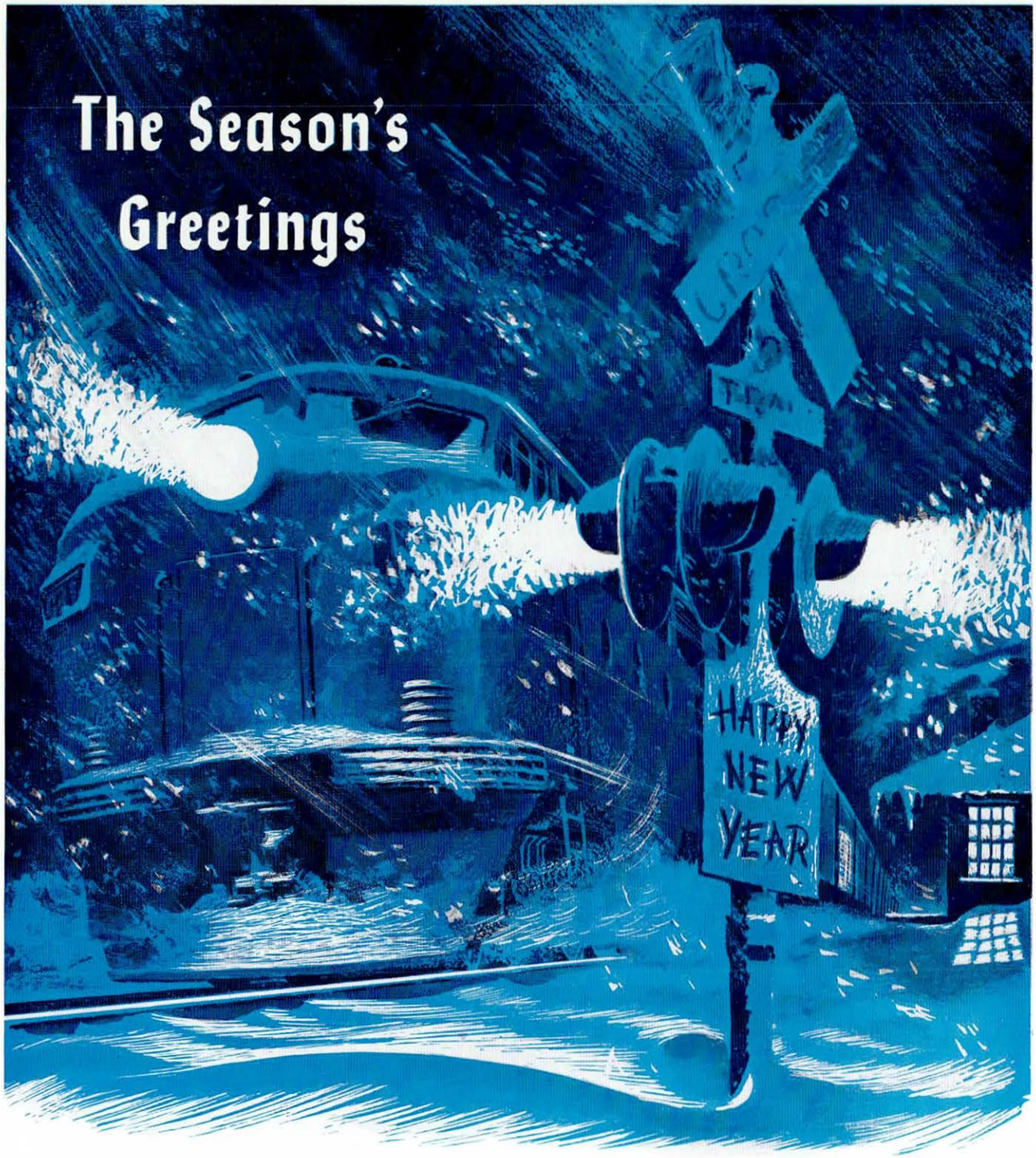


STEEL CASTINGS MANUFACTURER

NEW YORK
CHICAGO
BALTIMORE
RICHMOND, VA

SCULLIN STEEL CO.

SAINT LOUIS 10, MISSOURI



The New Year will mark 86 years of service by NATIONAL to transportation.

NATIONAL

TECHNICAL CENTER

New centralized facilities to continue mechanical development and advanced testing — benefiting the carriers and related industry.

NATIONAL MALLEABLE and STEEL CASTINGS COMPANY

Cleveland 6, Ohio

COUPLERS • YOKES • FREIGHT TRUCKS • DRAFT GEARS—RUBBER AND FRICTION • JOURNAL BOXES AND LIDS

NATIONAL EST. 1888 PRODUCTS and TECHNICAL SERVICES

Train of 85 loaded cars of coal, 6400 actual tons, being handled down 2 per cent grade between Hiawatha and Martin, Utah, by one Alco 1600-hp 6-motor road switcher equipped with auxiliary compressor.

"Alco 1600-hp 6-motor road switchers have cut our train operating costs 30%"

. . . says L. A. Kane, President and General Manager, Utah Railway

"We began dieselization," says the president of the coal-carrying Utah, "with the purchase of six Alco 1600-hp 6-motor road switchers. That was in January, 1952. Today, those six Alco units have cut our train operating costs by about 30 per cent and have considerably increased our operating efficiency."

Mr. Kane gives two examples: "On our heavy mine-run switching assignments

Alco

AMERICAN

the 6-motor road switchers are giving very satisfactory service on 4 per cent grades at altitudes of better than 7000 ft. And they are doing an equally good job on the difficult run between Martin and Provo, Utah, with two units in multiple on the head end and four units in multiple in helper service hauling a train of 85 cars of coal—6400 actual tons—up the 2.4 per cent ruling grade between Martin and Soldier Summit, Utah."

"The Utah," adds Mr. Kane, "is looking forward to still lower operating ratios and greater efficiency with delivery next summer of three additional Alco 6-motor road switchers."

You Get More Tons per Train with Alco 6-Motor Road Switchers

The Utah's experience is by no means unique. On *another* major Western road, for example, a single Alco 6-motor road switcher recently hauled 1343 trailing tons up a grade of 2½ per cent. *This was the heaviest load ever hauled up this grade by a single diesel locomotive.* Tractive effort was 85,000 pounds at 23.8 per cent rail adhesion.

In starting tests on yet another Western road, this same 1600-hp unit recorded 105,000 pounds tractive effort at 29.2 per cent adhesion while pulling 3402 trailing tons. Results like these explain why Alco 6-motor road switchers have tripled in sales every year since their introduction.

These rugged diesel-electrics are designed specifically for your heavy-drag assignments. With gross weight of 180 tons, they give up to 50 per cent greater tractive effort than 4-motor units of equal horsepower. Their ability to haul more tons per train cuts costs per MGTM by as much as 25 per cent.

An additional feature: Alco 6-motor road switchers are easy to operate in multiple. Thus they not only pack the pull for your big jobs but also provide economical motive power for your short-freight and switching assignments.

The 1600-hp 6-motor road switcher is only one of five road switchers engineered by Alco to give you *better motive power for greater earning power.* Your nearest Alco locomotive representative can give you the whole story.

Condensed Specifications for Alco 1600-HP 6-Motor Road Switchers

Weight
Fully loaded ..... 360,000 lb
On drivers ..... 360,000 lb
(Can be obtained in stepped weights from 280,000 to 360,000 lb)

Principal Dimensions
Length (inside knuckles) 56 ft 5¾ in.
Height ..... 14 ft 8¼ in.
Width (maximum) ..... 10 ft 1⅜ in.
Wheel base ..... 42 ft 3 in.
Each truck (rigid) ..... 12 ft 6 in.

Diesel Engine
ONE Model 244 turbosupercharged, 4-cycle, 12-cylinder, 1600-hp to generator for traction.

Dynamic Braking
Capacity 2900-hp

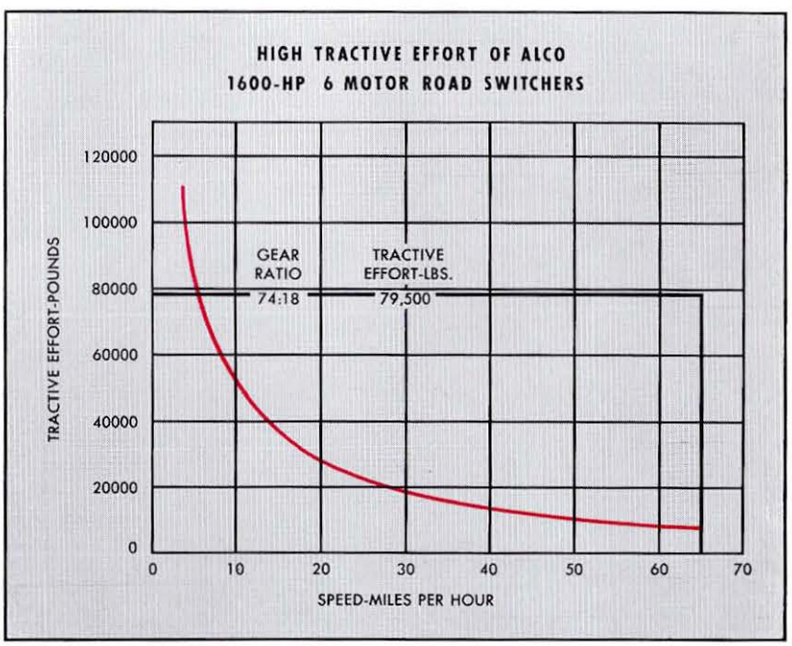
Running Gear
Trucks 3-axle, 6-wheel
Driving motors 6
Wheel diameter ..... 40 in.

Maximum Speed ..... 65 mph

Continuous Tractive Effort for 65 mph gearing ..... 79,500 lb

Traction Motor Gearing
Gear—number of teeth 74
Pinion—number of teeth 18
Ratio 4111

A *heavy-duty, all-purpose* unit available in a wide range of weights, the Alco 1600-hp 6-motor road switcher is capable of handling a wide variety of tough assignments.



LOCOMOTIVE COMPANY

Sales and Service Offices in New York, Chicago, Cleveland, St. Louis, San Francisco, and Washington, D. C.

ELECTRICAL INSULATION IS OUR SPECIALTY

Q. *What ONE wire and cable producer grows its own natural rubber, and makes its own synthetic rubber?*

A. UNITED STATES RUBBER COMPANY.

Q. *What ONE wire and cable producer makes plastics?*

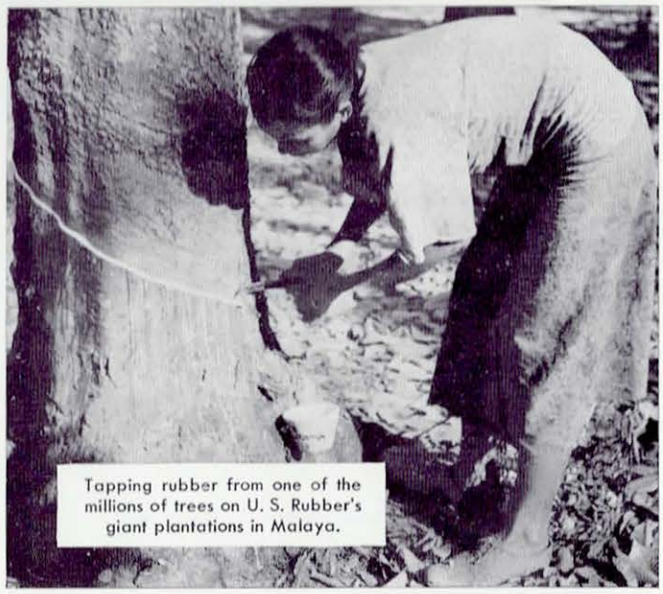
A. "U. S."

Q. *What is the most important part of wire and cable?*

A. The insulation.

Q. *Who is best equipped to make wire and cable with superior insulation?*

A. U. S. RUBBER—which grows its own natural rubber, makes its own synthetic rubber, manufactures its own plastics.



Tapping rubber from one of the millions of trees on U. S. Rubber's giant plantations in Malaya.

Isn't it logical that a rubber company should make the best wire and cable insulation there is? U. S. Rubber has been a pioneer in insulation for over 70 years—has amassed in that time a stockpile of research data and experience that can't be beat. Electrical insulation is a "U. S." specialty!

Electrical insulation makes the difference between superior and ordinary wire and cable. Conductors of all manufacturers are standard, but insulation must be the best that science can produce. That's why your best bet in wire and cable is U. S. Rubber.

SOME MORE OF THE MANY DIFFERENT VARIETIES OF "U. S." WIRE AND CABLE

RAILROADS: Power Cables · Communications · Railway Signal · Royal Cords · Welding Cable · Railway Utility · Sup. Control · Weatherproof

UTILITIES: Power Cables · Street Lighting · Royal Cords · Network Cables · Utility Control · Pole & Bracket Cable · Service Entrance · Weatherproof · Zip Cord Pole Fixture Cable · Sup. Control

HEAVY INDUSTRY: Power Cable · Royal Cords · Welding Cables · Control Cables · Machine Tool Wire · Building Wire · Switchboard Wire · Thermostat Cable · Bus Drop Cable

OZONE
HEAT
Absolute Tops in MOISTURE Resistance

U. S. RUBBER'S BUTYL-INSULATED POWER CABLES

America's railroads depend on this cable for steady power distribution and for general-purpose wiring on circuits up to 8000 volts between phases and at conductor temperatures up to 80 C. The insulation will not crack after four hours in air containing 0.015 per cent ozone. Light in weight, easy to install and join, resistant to oil, heat, sunlight, flame, acids, alkalies and corrosive chemicals. The following are guaranteed test values:

PHYSICAL AND AGING PROPERTIES (MINIMUM VALUES)

	Butyl Insulation			Neoprene Jacket	
	Unaged	After 168 Hrs. in O.B. at 80 C.	After 7 days in Air Oven at 250 F.	Unaged	After 96 Hrs. in O.B. at 70 C.
Tensile, lbs. per sq. in.	600	500	400	1800	1600
Elongation, per cent	400	350	350	300	250

MOISTURE RESISTANCE (MAXIMUM VALUES)

a. Dielectric constant and power factor of insulation after immersion in water at 50 C.

Dielectric constant, one day	4.0
Per cent gain, 1 to 14 days	2.0
Per cent gain, 7 to 14 days	1.0
Power factor, one day, per cent	2.0

b. Mgs. per sq. in., 7 days at 70 C. 15.0

U.S.RUBBER
SERVING THROUGH SCIENCE

UNITED STATES RUBBER COMPANY

ELECTRICAL WIRE & CABLE DEPT. • ROCKEFELLER CENTER, NEW YORK 20, N. Y.

REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands; i.e., with last three digits omitted)

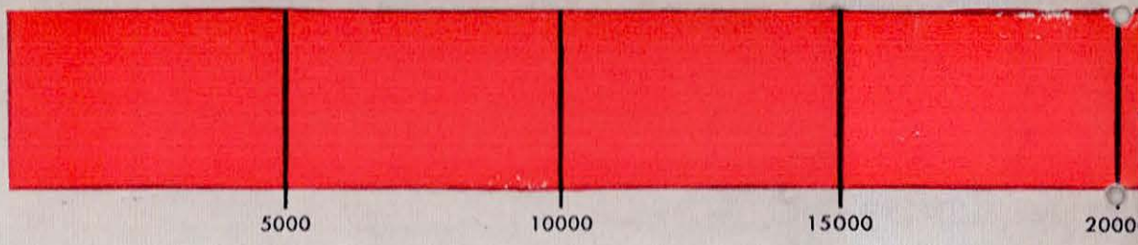
MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1953

Name of Road		Average mileage operated during period	Operating Revenues: Freight	Pass.	Total (inc. misc.) 1953	Total (inc. misc.) 1952	Operating Expenses: Maint. Way and Structures: Total 1953	Total 1952	Deprec. and Retirements	Maint. Equipment: Total 1953	Total 1952	Deprec. and Retirements	Traffic	Transportation	Total 1953	Total 1952	Operating ratio 1953	Operating ratio 1952	Net from railway operation	Railway tax accruals	Net railway operating income 1953	Net railway operating income 1952
Akron, Canton & Youngstown	Oct.	171	$512	....	$523	$536	$78	$84	$6	$57	$55	$15	$41	$144	$364	$354	69.5	66.0	$159	$60	$57	$101
	10 mos.	171	5,249	....	5,390	4,678	711	774	58	534	544	153	400	1,441	3,440	3,362	63.8	71.9	1,951	830	786	659
Atchison, Topeka & Santa Fe	Oct.	13,095	41,641	$3,549	49,795	55,800	8,694	7,930	654	10,240	9,333	1,785	1,192	15,813	38,036	36,630	76.4	65.6	11,759	6,492	5,200	6,156
	10 mos.	13,095	432,332	47,414	517,428	497,829	77,911	72,230	6,897	93,643	90,174	17,299	11,827	155,322	359,890	349,947	69.6	70.3	157,548	89,442	66,230	58,188
Atlanta & St. Andrews Bay	Oct.	82	307	:	314	316	28	34	3	19	21	4	9	68	143	139	45.4	44.0	171	94	45	56
	10 mos.	82	3,065	15	3,152	3,022	306	365	28	217	232	42	80	676	1,435	1,467	45.5	48.5	1,717	918	487	479
Atlanta & West Point	Oct.	93	272	37	375	407	72	54	6	57	61	13	16	153	319	332	85.0	81.5	56	25	15	15
	10 mos.	93	2,808	402	3,717	3,803	570	473	63	660	604	127	159	1,514	3,136	3,110	84.4	81.6	581	269	188	152
Western of Alabama	Oct.	133	342	37	426	431	48	54	7	58	67	17	16	153	298	311	69.8	72.2	129	70	58	51
	10 mos.	133	3,205	389	3,985	3,909	555	496	73	671	681	161	164	1,449	3,063	2,993	76.9	76.6	923	530	433	404
Atlantic & Danville	Oct.	205	160	....	162	173	40	34	2	9	16	5	12	44	118	130	73.0	74.7	44	10	5	10
	10 mos.	205	1,591	....	1,612	1,601	353	332	19	144	139	48	118	500	1,238	1,229	76.8	76.8	374	100	25	75
Atlantic Coast Line	Oct.	5,379	9,853	1,095	11,973	12,725	2,479	3,080	195	3,197	3,559	558	386	4,664	11,311	12,248	94.5	96.3	662	50	631	705
	10 mos.	5,379	110,373	16,758	137,966	140,795	24,339	25,797	1,666	34,144	30,005	5,438	3,760	50,935	119,297	114,089	86.5	81.0	18,670	8,125	7,597	9,602
Charleston & Western Carolina	Oct.	343	537	1	555	500	155	92	4	111	120	42	19	170	468	408	84.4	81.6	87	20	83	64
	10 mos.	343	5,688	17	5,861	5,294	1,546	1,320	70	1,014	1,137	425	174	1,658	4,574	4,491	78.0	83.3	1,288	575	731	501
Baltimore & Ohio	Oct.	6,186	36,484	1,561	40,754	40,104	5,203	5,225	534	8,474	7,931	1,028	964	15,238	31,600	30,574	77.5	76.2	9,155	3,362	4,202	4,541
	10 mos.	6,186	348,454	18,179	392,720	366,194	51,448	47,759	5,316	82,046	75,308	10,186	9,110	148,495	307,945	291,245	78.4	79.5	84,776	31,272	40,123	37,025
Staten Island Rapid Transit	Oct.	29	228	50	282	324	47	67	10	27	28	2	2	128	235	293	83.2	90.3	47	36	—14	—30
	10 mos.	29	2,351	499	2,893	3,118	567	576	135	287	312	19	17	1,406	2,589	2,747	89.5	88.1	304	362	—297	—239
Bangor & Aroostook	Oct.	602	743	31	809	784	200	222	17	237	224	91	22	244	770	780	95.2	99.5	38	10	72	81
	10 mos.	602	10,155	338	10,901	10,614	2,500	2,442	182	2,365	2,298	885	207	2,878	8,595	8,515	78.9	80.2	2,306	1,334	1,683	1,292
Bessemer & Lake Erie	Oct.	209	3,001	....	3,020	3,059	183	242	20	618	708	143	23	455	1,384	1,629	45.8	53.2	1,626	1,146	793	825
	10 mos.	212	26,438	6	26,630	21,739	2,136	2,064	227	6,972	5,922	1,317	211	4,729	14,939	13,765	56.1	63.3	11,691	8,052	5,735	4,948
Boston & Maine	Oct.	1,679	5,833	893	7,598	8,081	1,282	1,399	171	1,130	1,228	174	119	3,136	6,017	6,196	79.2	76.7	1,581	683	417	632
	10 mos.	1,679	56,896	9,607	74,850	73,698	13,121	13,565	1,711	11,182	11,472	1,778	1,144	31,074	59,953	60,650	80.1	82.3	14,897	6,588	4,300	3,529
Cambria & Indiana	Oct.	35	49	....	49	117	9	27	1	67	96	22	....	13	94	149	192.5	127.2	—45	46	59	143
	10 mos.	35	1,384	....	1,385	1,285	183	196	9	910	819	223	1	206	1,367	1,310	98.7	101.9	18	656	779	627
Canadian Pacific Lines in Maine	Oct.	234	346	49	424	426	100	103	5	116	99	17	8	181	421	441	99.2	103.7	3	28	—47	—79
	10 mos.	234	4,852	521	5,695	5,516	1,092	1,196	51	1,305	992	171	82	2,260	4,894	4,665	85.9	84.6	802	281	201	—34
Canadian Pacific Lines in Vermont	Oct.	90	196	18	237	249	101	76	4	41	32	....	7	125	283	246	119.3	98.8	—46	16	—131	—69
	10 mos.	90	1,931	140	2,274	2,257	869	693	40	377	302	2	70	1,241	2,647	2,345	116.4	103.9	—373	138	—1,088	—758
Central of Georgia	Oct.	1,786	3,137	141	3,537	3,771	572	585	47	569	626	119	137	1,344	2,834	2,963	80.1	78.6	703	222	433	537
	10 mos.	1,786	31,668	1,915	36,397	36,002	5,901	5,901	581	5,746	6,081	1,118	1,375	13,914	29,052	30,214	79.8	83.9	7,344	3,084	3,484	2,660
Central of New Jersey	Oct.	615	4,641	421	5,478	5,852	760	911	91	1,021	1,118	182	81	2,201	4,275	4,620	78.0	79.0	1,203	480	594	645
	10 mos.	617	44,592	4,670	52,601	53,419	7,209	7,173	898	10,275	9,902	1,761	811	21,507	41,938	42,688	79.7	79.9	10,663	4,869	4,498	4,146
Central Vermont	Oct.	422	826	61	959	874	214	157	16	97	110	12	17	381	750	755	78.2	86.4	209	40	76	31
	10 mos.	422	8,406	644	9,753	9,164	2,109	1,750	163	1,246	1,450	124	163	3,731	7,679	7,912	78.7	86.3	2,074	421	737	244
Chesapeake & Ohio	Oct.	5,114	28,697	637	30,938	26,939	4,048	4,149	356	5,861	5,440	1,493	779	9,417	21,480	20,403	69.4	75.7	9,458	4,723	5,792	3,983
	10 mos.	5,115	272,158	6,932	293,755	294,648	39,197	41,153	3,664	55,152	59,496	14,822	6,949	90,582	205,056	212,691	69.8	72.2	88,700	41,806	51,253	44,588
Chicago & Eastern Illinois	Oct.	868	2,629	232	3,182	3,310	415	411	27	468	565	129	147	1,123	2,327	2,390	73.1	71.6	855	322	427	431
	10 mos.	868	25,037	2,634	30,652	28,980	3,966	3,710	279	5,270	4,625	1,252	1,336	10,872	23,250	21,808	75.8	75.3	7,403	2,487	3,631	3,536
Chicago & Illinois Midland	Oct.	130	827	....	846	546	88	60	7	167	119	23	32	224	558	444	65.9	81.4	288	154	110	19
	10 mos.	130	7,182	1	7,349	5,486	828	595	76	1,571	1,336	232	315	2,198	5,378	4,544	73.2	82.8	1,971	1,039	681	168
Chicago & North Western	Oct.	7,874	15,279	1,715	18,833	20,814	2,689	2,751	338	2,670	2,981	796	372	7,899	14,493	15,387	77.0	73.9	4,340	1,064	2,217	3,378
	10 mos.	7,874	135,954	18,719	172,693	171,037	28,920	27,220	3,352	31,354	31,333	7,846	3,763	76,228	148,783	149,146	86.2	87.2	23,910	10,813	6,490	5,801
Chicago, Burlington & Quincy	Oct.	8,867	21,995	1,564	26,079	27,162	4,567	4,550	371	3,472	3,304	751	509	8,917	18,345	18,157	70.3	66.8	7,734	3,991	3,046	3,574
	10 mos.	8,867	193,443	17,070	233,670	221,377	39,590	34,863	3,777	33,151	34,324	7,025	5,095	81,219	167,357	160,372	71.6	72.4	66,313	35,382	26,277	23,457
Chicago Great Western	Oct.	1,468	3,081	6	3,313	3,502	486	601	38	476	450	120	112	925	2,095	2,405	63.2	68.7	1,218	453	443	389
	10 mos.	1,468	23,754	129	25,567	29,686	4,083	4,985	398	3,214	3,950	1,197	1,128	7,873	17,051	20,799	66.7	70.1	8,517	3,198	3,387	3,045
Chicago, Indianapolis & Louisville	Oct.	541	1,750	62	1,976	1,942	330	255	21	297	272	70	87	652	1,463	1,355	74.1	69.8	512	191	199	214
	10 mos.	541	16,429	625	18,382	18,132	3,477	3,145	195	2,730	2,739	697	874	6,277	14,321	13,980	77.9	77.1	4,061	1,495	1,645	1,440
Chicago, Milw., St. Paul & Pacific	Oct.	10,668	19,970	1,189	23,762	25,712	2,950	3,973	178	4,504	4,657	859	483	9,130	18,072	19,740	76.1	76.8	5,690	2,574	2,472	2,365
	10 mos.	10,670	181,595	13,957	218,487	224,515	35,880	34,680	3,669	45,311	45,370	8,555	4,884	86,449	182,722	186,832	83.6	83 2	35,765	16,439	11,592	12,645
Chicago, Rock Island & Pacific	Oct.	7,891	13,659	1,372	16,547	19,229	2,543	2,678	293	2,787	3,172	537	499	5,830	12,485	13,486	75.5	70.1	4,061	1,303	2,243	2,590
	10 mos.	7,905	144,861	15,933	176,814	177,474	23,637	23,386	2,590	27,328	28,830	5,492	4,911	59,966	124,234	128,626	70.3	72.5	52,581	21,670	23,497	20,489
Chic., St. Paul, Minn. & Omaha	Oct.	1,617	2,822	151	3,207	3,280	472	508	61	409	438	94	69	1,373	2,454	2,616	76.5	79.8	753	178	314	274
	10 mos.	1,617	24,285	1,675	28,219	28,367	4,924	4,526	487	4,307	4,201	902	681	13,923	25,137	24,799	89.1	87.4	3,083	1,796	—964	—413
Clinchfield	Oct.	317	2,034	1	2,045	1,928	423	357	20	332	358	94	46	447	1,291	1,192	63.1	61.8	754	216	706	694
	10 mos.	317	20,465	11	20,573	19,861	3,702	3,079	210	3,458	3,375	918	461	4,247	12,285	11,512	59.7	58.0	8,289	2,199	7,347	7,532

(Continued on page 26)

LADING DAMAGE INDEX

Car Outbound
Mounted on short-travel coil springs



Same Car Inbound
Mounted on ASF Ride-Control Packages

VISUAL PROOF

Detailed results of typical test run...Compare the "before and after" riding qualities of the test car!

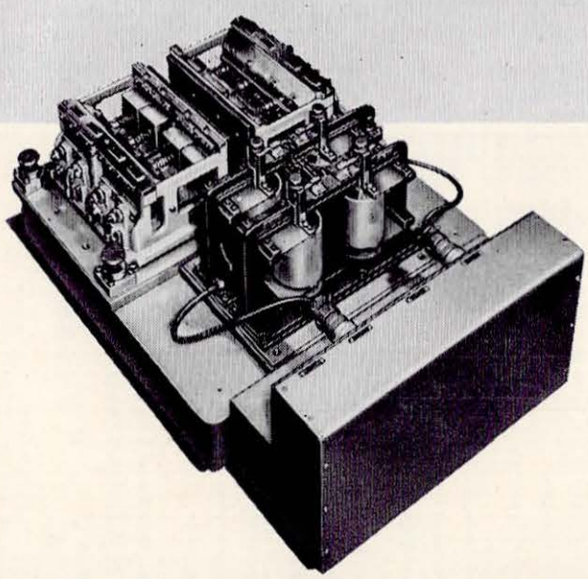
CAR OUTBOUND	Service Factors	SAME CAR INBOUND
27.9 Miles	Distance	27.9 Miles
145,000 Lbs.	Rail Load	145,000 Lbs.
AAR 1936 Coils	Type Springing*	ASF Ride-Control Packages
56 M.P.H.	Maximum Speed	84 M.P.H.

Actual Impact Count—and Lading Damage Index Factor

10,908	.25G	4894 x 1	— 4,894	2,699	.25G	2590 x 1	— 2,590
6,014	.50G	3631 x 4	—14,524	109	.50G	100 x 4	— 400
2,383	.75G	1667 x 9	—15,003	9	.75G	7 x 9	— 63
716	1.00G	716 x 16	—11,456	2	1.00G	2 x 16	— 32
Lading Damage Index			**45,877**	Lading Damage Index			**3,085**

(NOTE: Lading damage index reduced 93.3%. Discount the relatively harmless .25G impacts and the reduction is 98.7%, even though test car travelled 84 M. P. H. on the return trip!)

Approximate time required for change to Ride-Control Packages: 12 minutes!

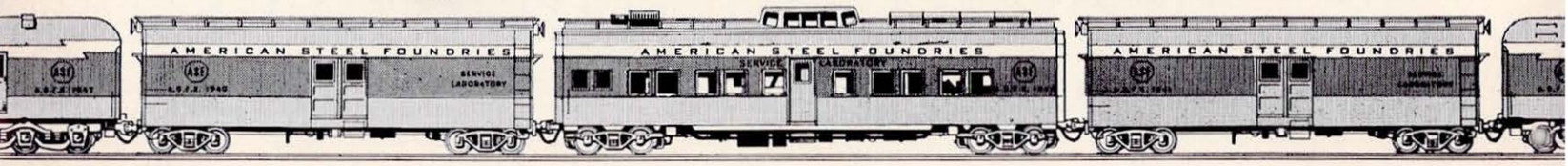


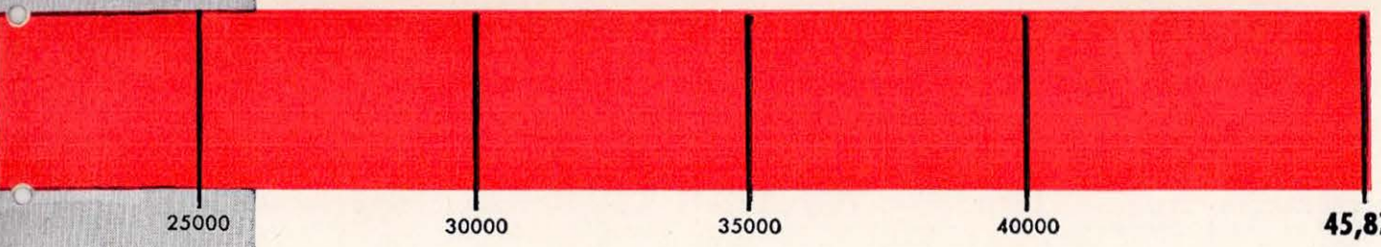
How the tests were conducted

Consist of ASF Test Train at Atlantic City was 2 identical 50-ton box cars, an "operations car" (with observation dome) and 2 passenger cars.

One box car was equipped with ASF Ride-Control Trucks. The other box car was mounted on AAR 1936 coils for the outbound run; for the return trip *on the same track*, it was remounted on ASF Ride-Control Packages.

Sensitive accelerometers (shown at left) were located at each end of each box car. They measured the lateral and vertical shocks, recorded in the operations car.





# of smoother freight hauls!

Take a freight car with short-travel coil springs ...remount it on ASF Ride-Control® Packages ...and the graph above shows how the lading damage index is reduced over 90%.

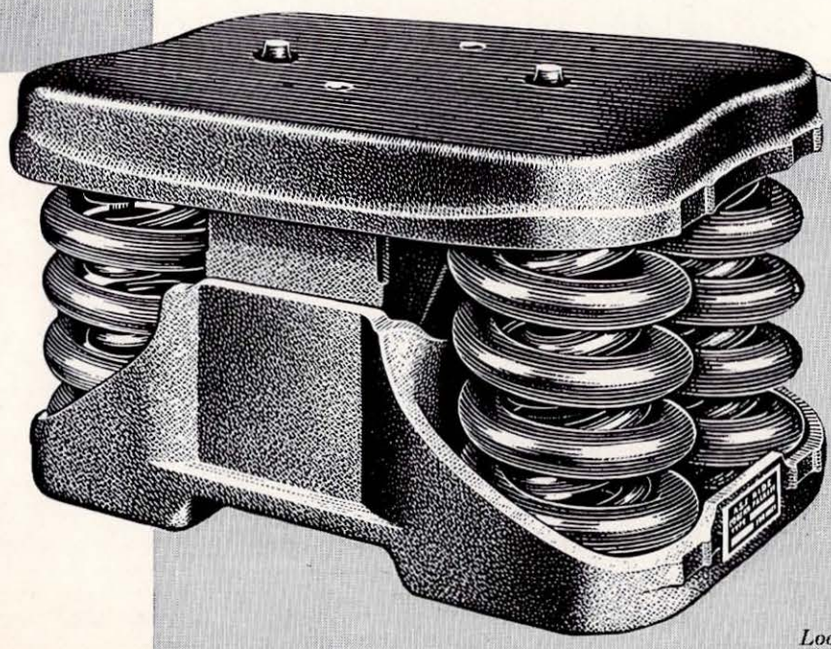
One of the fastest ways to cut lading damage claims is to bring *all* your freight cars up to modern riding standards . . . *credit old short-travel springs against an investment in ASF Ride-Control Packages.* The Atlantic City runs with the ASF Test Train prove how a quick changeover from 1936 coils to the Package practically revolutionizes the riding qualities of an otherwise identical car. Typical test results are shown at left.

And, smoother riding is only the most obvious reason why ASF Ride-Control Packages quickly pay for themselves. Ask yourself how much rough riding costs your road in terms of frequent car repairs, higher maintenance of way, cars suitable for restricted use only. Then consider the economy of a general repairs program that includes giving your older cars riding qualities closely comparable to a brand-new car!

* * *

Call your nearest ASF Representative—for the facts on how an investment in Ride-Control Packages can quickly be written off.

Bring YOUR older cars up to modern riding standards...with



ASF

RIDE-CONTROL PACKAGES

AMERICAN STEEL FOUNDRIES

410 N. Michigan Avenue, Chicago 11, Illinois

Look for this MINT ◯ MARK on the running gear you specify

Canadian Sales: International Equipment Co., Ltd., Montreal 1, Quebec

REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands; i.e., with last three digits omitted)

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1953

Name of Road		Average mileage operated during period	Operating Revenues: Freight	Pass.	Total (inc. misc.) 1953	Total (inc. misc.) 1952	Operating Expenses: Maint. Way and Structures: Total 1953	Total 1952	Deprec. and Retirements	Maint. Equipment: Total 1953	Total 1952	Deprec. and Retirements	Traffic	Transportation	Total 1953	Total 1952	Operating ratio 1953	Operating ratio 1952	Net from railway operation	Railway tax accruals	Net railway operating income 1953	Net railway operating income 1952
Colorado & Southern	Oct.	729	1,221	74	1,418	1,754	202	350	32	175	170	40	30	504	970	1,165	68.4	66.4	448	231	190	290
	10 mos.	731	11,532	744	13,469	13,305	1,868	1,709	206	1,765	1,967	376	300	4,557	9,062	9,284	67.3	69.8	4,407	2,339	1,909	1,730
Ft. Worth & Denver	Oct.	1,038	1,441	124	1,705	2,122	415	284	37	233	237	37	65	607	1,421	1,372	83.4	64.7	283	54	107	332
	10 mos.	1,038	16,138	1,402	19,028	19,413	3,118	2,887	386	2,652	2,439	354	591	6,348	13,697	13,848	72.0	71.3	5,332	1,915	2,345	2,483
Colorado & Wyoming	Oct.	40	187	....	286	312	19	21	2	42	48	11	2	103	176	196	61.7	62.7	109	61	45	51
	10 mos.	40	1,838	....	2,904	2,332	178	199	19	358	342	110	14	1,051	1,713	1,563	58.9	67.0	1,191	708	470	284
Columbus & Greenville	Oct.	168	197	1	208	207	36	32	4	38	28	6	4	60	185	139	89 0	67.5	23	4	14	28
	10 mos.	168	1,677	1	1,759	1,572	352	295	37	278	268	62	42	506	1,396	1,280	79.4	81.5	362	256	132	105
Delaware & Hudson	Oct.	793	4,516	140	4,823	5,645	737	845	60	750	835	117	85	1,603	3,397	3,659	70.4	64.8	1,426	301	1,206	1,024
	10 mos.	793	43,432	1,617	46,541	48,238	7,690	7,179	663	8,122	9,372	1,338	846	16,168	34,886	37,122	75.0	77.0	11,655	3,572	8,490	5,820
Delaware, Lackawanna & Western	Oct.	962	6,326	765	7,827	8,699	947	895	401	1,338	1,486	321	190	3,129	5,883	6,239	75.2	71.7	1,944	978	1,005	1,163
	10 mos.	962	60,862	7,899	75,838	77,399	9,007	8,558	1,783	12,791	14,235	3,099	1,792	31,886	58,207	60,125	76.8	77.7	17,630	8,875	8,700	8,434
Denver & Rio Grande Western	Oct.	2,313	7,340	242	7,848	8,182	645	808	96	1,097	1,273	265	189	2,287	4,529	4,932	57.7	60.3	3,318	1,738	1,442	1,485
	10 mos.	2,317	66,148	3,119	71,685	66,796	9,391	8,696	1,360	11,518	11,377	2,512	1,800	21,000	46,759	46,364	65.2	69.4	24,926	12,934	10,771	8,898
Detroit & Mackinac	Oct.	232	216	....	217	210	47	43	3	24	22	9	5	44	129	125	59.5	59 5	88	43	37	41
	10 mos.	232	1,764	2	1,814	1,704	417	430	33	238	208	95	48	373	1,180	1,172	65.0	68.8	634	334	296	257
Detroit & Toledo Shore Line	Oct.	50	624	....	659	701	87	79	4	67	55	18	17	205	391	359	59.3	51.3	268	123	34	111
	10 mos.	50	6,920	....	7,285	6,307	836	770	31	637	593	176	170	2,116	3,899	3,537	53.5	56.1	3,386	1,244	1,024	854
Detroit, Toledo & Ironton	Oct.	464	1,957	1	2,038	1,698	271	207	29	310	265	86	36	529	1,216	959	59.7	56.5	822	396	389	338
	10 mos.	464	18,058	4	19,040	14,674	2,499	2,001	247	2,625	3,171	789	328	7,155	13,275	9,932	69.7	67.7	5,765	2,491	2,524	2,061
Duluth, Missabe & Iron Range	Oct.	586	6,061	....	7,094	7,463	591	637	63	774	742	117	9	1,971	3,440	4,134	48.5	55.4	3,654	2,373	1,285	1,373
	10 mos.	568	50,747	7	59,065	41,825	6,098	6,321	707	7,333	6,493	1,002	92	16,556	31,243	28,741	52.9	68.7	27,822	18,659	9,461	5,035
Duluth, South Shore & Atlantic	Oct.	553	696	5	748	821	175	142	10	143	145	22	27	223	590	622	78.8	75.7	158	52	87	97
	10 mos.	552	6,621	57	7,060	6,693	1,745	1,350	101	1,487	1,390	205	249	2,276	5,966	5,632	84.5	84.1	1,093	289	456	413
Duluth, Winnipeg & Pacific	Oct.	175	392	1	401	381	94	97	7	86	79	2	6	197	390	378	97.3	99.2	11	30	—79	—66
	10 mos.	175	4,157	10	4,239	4,935	895	865	46	775	783	21	55	1,941	3,740	3,936	88.2	79.7	500	337	—409	19
Elgin, Joliet & Eastern	Oct.	236	3,668	....	4,562	5,369	422	276	83	758	735	112	35	1,648	3,050	2,926	66.9	54.5	1,512	754	321	751
	10 mos.	236	38,485	....	46,801	39,393	3,339	3,280	362	9,045	6,639	1,148	341	16,669	30,644	26,241	65.4	66.6	16,157	7,954	3,982	2,912
Erie	Oct.	2,235	14,511	559	16,356	17,251	2,348	2,062	518	2,226	2,171	497	359	6,182	11,797	11,862	72.1	68.8	4,559	1,759	1,965	2,360
	10 mos.	2,237	136,447	5,959	154,357	146,257	21,634	20,245	3,199	21,744	22,220	4,943	3,558	60,437	114,142	112,210	73.9	76.7	40,216	16,700	16,465	14,712
Florida East Coast	Oct.	571	1,486	301	1,957	2,021	418	361	59	583	524	79	74	819	2,035	1,946	104.0	96.3	—78	228	—387	—192
	10 mos.	571	19,566	5,686	27,429	28,185	3,773	3,578	487	5,318	5,020	779	748	10,028	21,610	21,489	78.8	76.2	5,819	1,790	2,450	3,451
Georgia	Oct.	321	712	14	818	843	125	141	7	135	129	31	34	322	648	704	79.2	83.6	170	36	163	112
	10 mos.	321	7,135	261	8,068	8,121	1,216	1,192	82	1,363	1,285	308	343	3,246	6,523	6,561	80.9	80.8	1,545	371	1,452	1,359
Georgia & Florida	Oct.	360	287	....	292	322	95	105	4	37	35	6	20	90	260	268	89.3	83.1	31	19	—10	7
	10 mos.	360	3,291	....	3,336	3,156	1,038	913	35	379	366	57	200	972	2,747	2,577	82.4	81.7	589	189	108	130
Grand Trunk Western	Oct.	952	4,186	226	4,782	4,829	671	849	51	756	891	89	74	2,254	3,940	4,139	82.4	85.7	842	301	230	20
	10 mos.	952	46,050	2,226	51,960	46,070	7,463	7,616	518	8,616	8,418	891	769	22,579	41,305	39,432	79.5	85.6	10,655	3,057	4,032	695
Canadian Nat'l Lines in New Engl.	Oct.	172	164	5	214	163	66	65	9	54	56	....	3	155	293	266	136.7	163.2	—79	24	—156	—167
	10 mos.	172	1,817	77	2,248	2,125	708	735	95	431	691	1	28	1,413	2,776	3,009	123.5	141.6	—528	241	—1,305	—1,542
Great Northern	Oct.	8,303	24,308	912	27,140	28,777	3,669	4,097	322	3,841	3,626	723	420	8,026	16,938	17,061	62.4	59.3	10,203	5,198	4,393	4,848
	10 mos.	8,303	198,841	10,524	226,207	217,754	40,491	37,742	3,119	38,045	37,057	7,077	4,036	71,966	163,118	158,971	72.1	73.0	63,089	33,188	24,955	22,690
Green Bay & Western	Oct.	224	424	....	434	340	102	74	4	48	44	8	21	112	306	243	70.6	71.3	128	70	35	31
	10 mos.	224	3,868	....	3,942	3,022	884	709	38	417	390	78	209	941	2,615	2,306	66.3	76.3	1,327	667	429	162
Gulf, Mobile & Ohio	Oct.	2,766	7,133	352	7,986	8,802	1,070	1,247	63	1,397	1,440	256	271	2,278	5,391	5,744	67.5	65.3	2,595	1,239	1,009	1,191
	10 mos.	2,766	69,406	3,821	78,263	76,589	11,753	11,940	690	14,107	13,365	2,591	2,638	22,330	54,418	53,215	69.5	69.5	23,844	10,900	9,462	9,000
Illinois Central	Oct.	6,537	24,534	1,880	29,045	29,490	3,928	4,229	375	4,274	4,707	706	512	9,299	19,078	20,072	65.7	68.1	9,967	5,189	3,804	1,337
	10 mos.	6,538	213,776	19,375	258,690	250,961	38,625	39,304	3,745	41,117	41,782	6,844	5,079	88,592	183,838	185,663	71.1	74.0	74,852	41,048	28,611	24,970
Illinois Terminal	Oct.	355	924	61	1,079	1,371	124	166	25	186	187	41	47	396	816	927	75.6	67.6	264	105	135	154
	10 mos.	375	8,933	648	10,641	10,880	1,565	1,543	257	1,838	1,610	406	435	3,945	8,396	8,419	78.9	77.4	2,246	933	1,015	868
Kansas City Southern	Oct.	891	3,441	117	3,935	4,513	624	410	37	617	473	90	96	1,167	2,638	2,282	67.1	50.6	1,297	449	593	787
	10 mos.	891	35,487	1,373	40,374	39,324	5,332	4,194	363	5,434	4,754	905	909	11,686	24,654	22,247	61.1	56.6	15,720	6,299	6,917	6,700
Kansas, Oklahoma & Gulf	Oct.	327	553	....	559	686	107	123	6	32	31	11	26	119	307	331	54.9	48.3	252	96	122	182
	10 mos.	327	5,679	5	5,734	6,098	959	1,045	59	449	375	114	267	1,224	3,142	3,183	54.8	52.2	2,591	1,226	1,024	1,089
Lake Superior & Ishpeming	Oct.	156	483	....	596	600	85	54	12	66	55	16	2	122	289	248	48.6	41.3	306	59	262	167
	10 mos.	156	3,750	....	4,616	3,468	626	525	119	596	554	147	20	1,001	2,371	2,104	51.4	60.7	2,245	1,138	1,237	610
Lehigh & Hudson River	Oct.	96	332	....	332	313	43	42	2	29	28	8	13	93	189	179	56.9	57.1	143	59	51	56
	10 mos.	96	2,930	....	2,936	2,735	418	435	23	294	293	85	136	863	1,830	1,796	62.3	65.7	1,106	452	396	370
Lehigh & New England	Oct.	180	869	....	878	1,075	100	104	6	152	167	37	13	225	525	555	59.8	51.6	353	210	205	261
	10 mos.	180	6,870	....	6,936	7,523	882	807	63	1,339	1,315	379	128	2,046	4,770	4,539	68 8	60.3	2,166	1,405	1,430	1,722
Lehigh Valley	Oct.	1,164	6,072	281	6,734	7,656	861	967	88	1,147	1,069	205	139	2,548	4,945	5,006	73.4	65.4	1,789	643	1,048	1,368
	10 mos.	1,174	57,963	3,014	64,572	65,485	8,459	8,163	967	11,025	10,562	2,068	1,408	24,681	48,083	47,526	74.5	72.6	16,488	6,071	9,100	9,601
Long Island	Oct.	365	1,285	3,195	4,723	4,673	624	648	81	937	823	120	13	2,337	4,079	3,875	86.4	82.9	643	380	—59	27
	10 mos.	365	12,285	32,127	46,873	44,417	6,415	6,156	858	8,967	7,877	1,212	154	22,628	39,817	38,838	84.9	87.4	7,056	3,899	389	—1,693

(Continued from page 23)

REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands; i.e., with last three digits omitted)

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1953

Name of Road		Average mileage operated during period	Operating Revenues				Operating Expenses										Operating ratio		Net from railway operation	Railway tax accruals	Net railway operating income	
					Total (inc. misc.)		Maint. Way and Structures			Maint. Equipment												
			Freight	Pass.	1953	1952	Total 1953	Total 1952	Deprec. and Retirements	Total 1953	Total 1952	Deprec. and Retirements	Traffic	Transportation	Total 1953	Total 1952	1953	1952				
Louisiana & Arkansas	Oct	756	2,526	56	2,659	2,314	532	446	207	393	306	89	88	635	1,728	1,510	65.0	65.3	932	373	500	405
	10 mos	756	24,007	573	25,546	21,913	4,197	3,692	377	3,068	2,718	873	769	6,207	15,022	13,662	58.8	62.3	10,524	4,541	5,297	3,880
Louisville & Nashville	Oct	4,737	17,727	894	19,944	20,310	2,908	2,901	225	3,892	4,072	790	346	6,579	14,391	14,737	72.2	72.6	5,553	3,462	3,092	3,130
	10 mos	4,737	174,171	10,774	197,399	187,442	27,646	27,349	2,244	38,591	40,515	7,703	3,442	65,104	141,339	144,700	71.6	77.2	56,060	32,837	29,348	21,808
Maine Central	Oct	945	1,840	101	2,120	2,177	449	531	50	355	386	72	19	717	1,626	1,767	76.7	81.2	494	249	215	220
	10 mos	945	18,468	1,223	21,396	22,418	4,525	4,517	515	3,539	3,822	720	207	7,400	16,521	17,220	77.2	76.8	4,875	2,295	2,112	2,188
Midland Valley	Oct	334	222	....	226	199	58	50	11	24	16	4	6	58	155	145	68.8	72.7	71	29	18	26
	10 mos	334	2,142	....	2,172	1,761	481	488	85	172	194	37	52	595	1,380	1,426	63.5	81.0	792	359	259	90
Minneapolis & St Louis	Oct	1,397	2,074	5	2,160	2,362	344	429	45	291	279	77	134	659	1,551	1,647	71.8	69.8	609	260	272	329
	10 mos	1,397	17,825	70	18,604	18,846	3,349	3,300	312	2,694	2,809	760	1,255	5,920	14,364	14,447	77.2	76.7	4,240	2,275	1,729	1,711
Minn., St. Paul & Sault Ste. Marie	Oct	3,222	3,394	76	3,711	4,104	941	933	59	759	593	101	89	1,364	3,290	3,165	88.7	77.1	421	156	269	474
	10 mos	3,223	31,597	942	34,694	36,237	7,770	7,742	505	6,802	6,587	986	786	13,072	29,776	30,028	85.8	82.9	4,918	2,776	1,928	2,248
Mississippi Central	Oct	148	220	....	225	237	73	54	2	28	33	6	14	53	177	175	78.9	73.9	48	18	17	17
	10 mos	148	2,280	....	2,315	2,247	570	498	24	312	297	45	137	584	1,707	1,676	73.7	74.6	608	246	238	179
Missouri-Illinois	Oct	172	431	....	433	536	94	106	7	75	74	21	10	142	333	348	76.7	65.0	101	29	75	86
	10 mos	172	4,886	1	4,900	4,489	796	792	42	752	710	208	98	1,248	2,991	2,902	61.0	64.6	1,909	1,121	850	736
Missouri-Kansas-Texas Lines	Oct	3,242	6,178	238	7,048	7,864	1,159	1,254	116	1,147	1,062	240	262	2,503	5,387	5,450	76.4	69.3	1,661	595	672	1,141
	10 mos	3,242	62,620	2,737	72,379	70,426	11,012	10,185	1,039	11,165	10,168	2,320	2,555	24,643	52,479	50,607	72.5	71.9	19,900	8,292	8,103	8,358
Missouri Pacific	Oct	6,935	18,040	800	20,460	23,795	4,018	4,012	280	4,212	4,202	769	465	7,408	16,758	17,432	81.9	73.3	3,702	1,033	2,055	2,977
	10 mos	6,935	174,293	9,500	201,120	205,359	37,893	34,385	2,797	40,288	38,729	7,462	4,696	72,516	161,969	157,705	80.5	76.8	39,151	12,667	20,827	23,651
International-Great Northern	Oct	1,104	2,608	122	2,923	3,483	641	658	34	552	565	116	61	1,224	2,601	2,593	89.0	74.4	323	27	221	438
	10 mos	1,104	27,841	1,589	31,787	31,637	6,874	6,488	381	5,746	5,642	1,122	606	12,147	26,678	26,134	83.9	82.6	5,109	937	3,139	2,836
Gulf Coast Lines	Oct	1,723	3,067	71	3,382	3,819	778	819	39	548	558	109	89	1,164	2,724	2,781	80.5	72.8	658	130	418	527
	10 mos	1,723	33,128	943	36,352	36,796	8,234	7,606	407	5,433	5,525	1,080	909	11,688	27,769	27,250	76.3	74.0	8,584	2,422	4,386	4,421
Monongahela	Oct	178	632	....	635	414	101	76	10	72	61	12	1	201	383	346	60.3	83.5	252	40	56	—81
	10 mos	178	6,661	....	6,694	6,365	1,200	884	413	707	785	102	10	2,233	4,238	4,170	63.3	65.5	2,455	615	413	418
Montour	Oct	51	280	....	286	187	36	25	3	72	80	19	1	80	199	187	69.7	100.0	87	68	92	43
	10 mos	51	2,285	....	2,299	1,890	328	227	26	770	725	191	10	713	1,921	1,848	83.5	97.7	379	525	544	395
Nashville, Chatt. & St Louis	Oct	1,032	2,971	110	3,507	3,749	598	639	50	519	441	137	116	1,111	2,452	2,513	69.9	67.0	1,055	562	517	642
	10 mos	1,032	28,981	1,448	33,812	34,091	5,243	5,862	514	4,959	4,706	1,327	1,180	11,379	24,000	24,404	71.0	71.6	9,811	4,902	4,963	4,881
New York Central	Oct	10,716	52,705	9,140	71,415	75,346	10,070	12,082	1,446	14,076	14,105	2,310	1,113	29,767	58,497	60,457	81.9	80.2	12,918	5,188	5,897	8,582
	10 mos	10,716	513,857	96,421	695,635	663,121	95,753	96,093	10,049	139,790	135,636	23,424	11,029	291,443	571,845	565,196	82.2	85.2	123,790	56,213	52,744	36,735
Pittsburgh & Lake Erie	Oct	221	3,943	68	4,203	4,529	604	659	54	1,100	1,051	282	70	1,314	3,331	3,347	79.3	73.9	872	766	1,191	1,092
	10 mos	221	39,788	706	42,677	36,876	5,397	4,763	474	10,657	10,426	2,756	737	13,787	32,929	31,207	77.2	84.6	9,748	7,564	11,827	8,050
New York, Chicago & St Louis	Oct	2,185	14,285	155	15,014	16,258	1,746	1,500	138	2,314	2,218	330	318	4,840	9,678	9,558	64.5	58.8	5,335	2,715	2,192	3,013
	10 mos	2,184	134,908	1,591	141,599	133,563	16,865	15,959	1,538	22,192	20,982	3,225	3,127	48,206	94,969	90,529	67.1	67.8	46,630	23,432	19,160	18,718
New York, New Haven & Hartford	Oct	1,771	8,136	4,093	14,033	14,553	2,371	2,368	310	2,170	2,117	394	175	5,904	11,358	11,337	80.9	77.9	2,675	882	771	1,184
	10 mos	1,780	80,237	42,343	137,833	134,527	22,184	20,577	2,813	20,318	21,077	3,862	1,863	58,149	110,170	107,914	79.9	80.2	27,663	10,696	8,014	7,808
New York Connecting	Oct	21	309	....	353	334	125	119	25	19	21	....	....	83	230	221	65.2	66.1	123	77	41	28
	10 mos	21	3,175	....	3,463	3,228	959	968	251	248	260	....	....	897	2,134	2,067	61.6	64.0	1,329	756	547	441
New York, Ontario & Western	Oct	541	563	....	584	668	147	125	17	87	88	23	25	276	567	538	97.1	80.6	17	37	—101	20
	10 mos	541	5,814	43	6,029	5,908	1,326	1,238	179	875	831	227	244	2,688	5,436	5,274	90.2	89.3	593	367	—538	—377
New York, Susquehanna & Western	Oct	120	438	43	507	561	59	58	5	64	66	12	10	211	374	379	73.8	67.6	133	35	38	107
	10 mos	120	4,213	402	4,870	4,674	575	576	54	601	594	119	83	2,067	3,602	3,550	74.0	75.9	1,268	358	429	438
Norfolk & Western	Oct	2,135	17,082	320	18,138	14,816	2,304	2,458	291	3,513	2,939	640	308	4,967	11,706	11,111	64.5	75.0	6,432	4,253	3,543	1,925
	10 mos	2,135	149,555	4,085	160,322	162,098	23,039	23,713	2,888	33,832	34,995	6,331	3,052	47,983	114,277	116,286	71.3	71.7	46,045	32,135	23,648	22,442
Norfolk Southern	Oct	620	995	....	1,011	1,049	215	228	13	108	122	26	50	270	708	786	70.1	74.9	303	146	98	88
	10 mos	620	9,194	....	9,329	9,796	2,017	2,000	130	1,187	1,186	267	486	2,702	7,056	7,507	75.6	76.6	2,274	1,121	728	781
Northern Pacific	Oct	6,879	14,635	504	16,408	17,798	2,491	2,265	270	3,081	3,172	432	332	6,121	12,780	12,389	77.9	69.6	3,628	2,238	1,877	2,703
	10 mos	6,880	133,918	6,414	151,819	147,573	26,473	24,733	2,646	28,624	28,617	4,222	3,466	57,264	123,161	119,037	81.1	80.7	28,658	17,881	13,440	12,645
Northwestern Pacific	Oct	331	1,131	7	1,163	1,278	302	348	28	110	136	4	7	353	792	1,038	68.1	81.2	371	111	133	—54
	10 mos	331	10,661	38	11,152	11,264	2,995	2,688	228	1,095	1,079	42	57	3,852	8,216	8,342	73.7	74.1	2,937	850	675	382
Oklahoma City-Ada-Atoka	Oct	132	108	....	109	92	23	21	2	2	3	....	2	21	51	53	46.8	57.2	58	24	22	4
	10 mos	132	902	....	908	971	218	226	24	14	39	....	18	203	491	554	54.1	57.1	417	150	146	115
Pennsylvania	Oct	10,083	68,716	11,154	89,403	94,761	12,434	12,989	1,378	19,578	23,383	2,885	1,299	36,826	73,557	79,781	82.3	84.2	15,846	6,786	6,633	6,963
	10 mos	10,085	674,411	118,503	880,976	845,512	118,081	109,306	13,928	194,470	189,271	28,830	13,160	361,343	722,091	712,363	82.0	84.3	158,885	68,429	70,392	63,037
Pennsylvania-Reading Seashore Lines	Oct	364	721	125	880	905	217	208	25	107	98	22	11	518	889	907	101.0	100.2	—9	124	—302	—281
	10 mos	364	6,471	1,910	8,677	8,549	2,283	2,114	351	1,048	980	192	111	5,548	9,372	9,395	108.0	109.9	—695	1,165	—3,295	—3,340

(Continued on page 28)

REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands; i.e., with last three digits omitted)

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1953

Name of Road		Average mileage operated during period	Operating Revenues: Freight	Pass.	Total (inc. misc.) 1953	Total (inc. misc.) 1952	Operating Expenses: Maint. Way and Structures: Total 1953	Total 1952	Deprec. and Retirements	Maint. Equipment: Total 1953	Total 1952	Deprec. and Retirements	Traffic	Transportation	Total 1953	Total 1952	Operating ratio 1953	Operating ratio 1952	Net from railway operation	Railway tax accruals	Net railway operating income 1953	Net railway operating income 1952
Pittsburg & Shawmut	Oct	97	215	....	216	166	54	40	4	49	50	8	4	51	167	148	77.3	89.1	49	26	56	249
	10 mos	97	2,022	....	2,029	1,845	499	366	37	493	511	86	37	519	1,645	1,507	81.1	81.7	384	75	608	530
Pittsburgh & West Virginia	Oct	132	733	....	740	770	110	151	24	187	185	35	61	167	570	612	77.1	79.5	170	74	109	119
	10 mos	132	7,679	....	7,734	7,046	1,335	1,202	236	1,818	1,711	353	579	1,818	5,907	5,531	76.4	78.5	1,827	865	1,192	1,061
Reading	Oct	1,310	10,393	576	11,648	12,340	1,820	1,687	203	2,351	2,276	429	176	4,113	8,895	8,883	76.4	72.0	2,753	1,154	1,538	1,732
	10 mos	1,310	99,503	5,773	111,828	108,188	16,877	16,032	2,210	22,583	21,245	4,292	1,544	40,846	85,932	84,065	76.8	77.7	25,896	11,912	14,331	12,711
Richmond, Fredericksburg & Potomac	Oct	118	1,478	393	2,179	2,024	372	366	26	291	301	66	22	707	1,519	1,491	69.7	73.7	660	324	268	179
	10 mos	118	14,549	5,551	23,168	23,622	3,799	3,442	252	2,972	3,043	587	240	7,192	15,648	15,208	67.5	64.4	7,520	3,662	2,681	2,743
Rutland	Oct	392	418	—1	464	519	83	73	10	58	79	14	22	187	375	436	80.9	84.1	89	27	26	30
	10 mos	370	3,568	103	4,210	4,764	769	796	115	624	802	138	219	1,918	3,802	4,393	90.3	92.2	408	262	—92	—97
Sacramento Northern	Oct	265	268	....	278	486	85	77	10	11	17	4	2	111	225	213	81.0	43.8	53	23	—4	227
	10 mos	265	3,911	....	3,987	2,617	623	657	—3	200	149	40	22	894	1,843	1,834	46.2	70.1	2,143	763	1,136	417
St Louis-San Francisco	Oct	4,601	10,137	410	11,392	12,642	1,616	1,646	170	1,811	1,897	487	356	4,011	8,374	8,493	73.5	67.2	3,018	1,467	1,441	2,087
	10 mos	4,601	95,278	4,929	108,405	105,862	16,519	16,752	1,701	17,675	17,498	4,773	3,393	38,543	81,415	80,156	75.1	75.7	26,991	13,756	12,324	13,251
St Louis, San Francisco & Texas	Oct	159	361	4	395	477	57	48	6	33	34	1	25	155	284	279	71.9	58.4	111	42	24	56
	10 mos	159	4,118	61	4,396	4,599	607	497	44	373	364	11	252	1,609	2,956	2,731	67.2	59.4	1,441	592	408	642
St Louis Southwestern Lines	Oct	1,561	5,729	21	5,960	7,226	1,241	739	419	858	617	106	182	1,624	4,104	3,492	68.9	48.3	1,857	347	1,171	1,423
	10 mos	1,566	59,206	243	61,474	61,046	10,525	7,430	1,050	7,105	6,405	1,043	1,701	16,532	37,676	34,139	61.3	55.9	23,798	11,801	9,233	10,624
Seaboard Air Line	Oct	4,079	10,304	764	12,075	12,406	1,856	1,854	202	2,374	2,598	524	363	3,970	9,056	9,343	75.0	75.3	3,018	1,275	1,732	1,641
	10 mos	4,080	109,511	11,751	131,492	133,515	20,319	19,705	1,930	23,256	24,172	5,155	3,713	41,563	94,208	95,942	71.7	71.9	37,283	15,610	19,986	18,553
Southern	Oct	6,289	20,854	1,141	23,764	24,043	3,434	3,180	566	4,444	4,036	877	419	7,308	16,719	16,153	70.4	67.2	7,044	3,581	3,124	3,301
	10 mos	6,297	199,492	14,953	231,144	224,151	30,767	29,639	3,084	40,952	41,054	7,714	4,265	70,525	156,052	158,163	67.5	70.6	75,091	37,436	34,050	27,432
Alabama Great Southern	Oct	326	1,371	62	1,552	1,716	247	253	48	329	362	66	38	471	1,168	1,213	75.3	70.7	384	120	236	198
	10 mos	326	14,724	817	16,692	16,178	2,440	2,380	324	3,444	3,770	710	345	4,902	11,818	12,248	70.8	75.7	4,875	2,073	2,472	1,370
Cinn., New Orleans & Texas Pacific	Oct	337	3,394	125	3,695	3,673	486	483	38	752	849	171	75	897	2,368	2,479	64.1	67.5	1,327	826	631	525
	10 mos	337	35,969	1,833	39,745	36,991	4,448	4,614	349	8,020	8,495	1,744	733	9,588	24,131	24,880	60.7	67.3	15,614	9,235	7,120	5,236
Georgia Southern & Florida	Oct	397	717	36	821	726	150	158	7	60	81	7	8	233	500	496	61.0	68.3	320	72	64	57
	10 mos	397	6,859	737	8,277	7,551	1,652	1,592	92	724	704	69	79	2,424	5,191	4,869	62.7	64.5	3,086	760	622	671
New Orleans & Northeastern	Oct	203	1,041	38	1,161	1,246	196	147	31	135	135	25	18	231	638	584	54.9	46.9	523	268	225	209
	10 mos	203	10,446	514	11,568	10,188	1,673	1,553	183	1,260	1,271	250	195	2,256	5,863	5,784	50.7	56.8	5,705	3,148	2,064	1,399
Southern Pacific	Oct	8,119	41,274	2,809	47,342	52,940	5,323	5,248	572	10,040	9,970	1,823	857	17,445	35,728	36,885	75.5	69.7	11,613	5,809	4,621	6,873
	10 mos	8,113	400,894	32,884	464,948	463,286	54,875	52,777	4,556	95,424	92,212	17,353	8,584	174,179	353,551	345,918	76.0	74.7	111,397	55,492	41,598	48,755
Texas & New Orleans	Oct	4,290	10,921	532	12,385	13,670	1,741	2,069	150	1,694	1,609	88	275	4,213	8,497	8,979	68.6	65.7	3,888	1,698	1,061	1,501
	10 mos	4,290	108,884	6,218	122,835	123,044	20,422	18,705	1,321	16,421	17,078	864	2,749	41,755	87,179	87,099	71.0	70.8	35,656	15,634	10,222	11,136
Spokane International	Oct	152	275	1	294	268	63	53	3	27	25	10	6	72	180	163	61.4	60.9	113	30	47	43
	10 mos	152	2,793	9	2,937	2,471	614	612	23	236	220	86	54	696	1,716	1,655	58.4	66.9	1,221	417	579	423
Spokane, Portland & Seattle	Oct	944	2,214	68	2,439	2,783	416	433	50	384	372	115	29	876	1,800	1,814	73.8	65.2	639	204	266	452
	10 mos	944	24,338	871	26,627	26,077	3,914	4,176	429	3,607	3,328	980	292	8,140	16,889	16,653	63.4	63.9	9,738	3,286	5,235	5,089
Tennessee Central	Oct	286	461	1	489	572	94	77	5	73	66	22	11	142	343	337	70.3	59.0	145	26	74	82
	10 mos	286	4,028	34	4,309	4,482	913	920	54	677	653	213	118	1,409	3,352	3,346	77.8	74.6	957	258	336	420
Texas & Northern	Oct	8	107	....	109	113	5	6	....	9	12	3	1	10	30	49	27.6	43.8	79	34	16	17
	10 mos	8	1,191	....	1,263	1,076	49	55	2	75	93	24	10	108	295	448	23.3	41.7	968	475	276	189
Texas & Pacific	Oct	1,834	6,260	323	7,198	7,519	1,180	974	143	1,025	1,005	241	202	2,315	5,091	4,734	70.7	63.0	2,108	786	1,046	1,509
	10 mos	1,834	63,897	3,602	72,879	68,651	10,525	9,545	1,120	11,266	11,244	2,418	1,931	22,454	49,633	47,414	68.1	69.1	23,246	8,837	10,604	10,240
Texas Mexican	Oct	161	264	....	276	311	60	78	6	26	30	8	9	59	174	231	63.0	74.1	102	53	25	18
	10 mos	161	2,672	....	2,828	2,921	548	694	62	315	336	82	90	633	1,796	1,945	63.5	66.6	1,032	481	312	324
Toledo, Peoria & Western	Oct	239	715	....	728	710	87	109	6	112	43	11	51	151	449	379	61.6	53.4	279	114	82	125
	10 mos	239	6,473	....	6,599	5,728	1,096	998	63	582	460	99	493	1,363	3,913	3,540	59.3	61.8	2,686	1,301	837	745
Union Pacific	Oct	9,822	43,718	2,593	49,655	52,408	5,763	6,047	517	8,951	8,530	1,273	959	16,952	34,518	34,965	69.5	66.7	15,137	7,952	4,383	5,729
	10 mos	9,824	378,877	30,907	443,185	426,650	61,612	61,921	5,740	83,310	76,886	12,364	9,697	157,036	334,141	321,023	75.4	75.2	109,044	64,676	24,667	25,142
Utah	Oct	110	135	....	135	119	23	30	2	34	36	9	1	41	107	116	79.2	97.6	28	7	31	12
	10 mos	110	1,060	....	1,063	1,186	194	245	19	402	453	91	8	360	1,045	1,331	98.3	112.2	18	93	26	—119
Virginian	Oct	611	3,326	2	3,431	2,660	576	361	67	814	752	190	45	865	2,392	1,971	69.7	74.1	1,039	739	660	452
	10 mos	611	31,119	17	32,052	36,507	4,569	4,742	591	7,458	8,579	1,810	458	8,042	21,447	23,287	66.9	63.8	10,604	6,997	6,132	6,762
Wabash	Oct	2,393	10,483	402	11,713	12,400	1,411	1,310	193	1,452	1,286	385	320	4,270	7,848	7,636	67.0	61.6	3,865	1,681	1,512	2,076
	10 mos	2,393	90,588	4,263	102,505	95,487	13,050	12,645	1,217	13,254	12,732	3,687	3,029	41,354	74,513	70,642	72.7	74.0	27,992	10,933	11,376	10,052
Ann Arbor	Oct	294	825	4	839	741	100	114	15	141	137	30	29	359	650	611	77.5	82.5	189	79	72	75
	10 mos	294	7,753	5	7,931	6,141	1,027	1,056	102	1,261	1,150	300	278	3,182	5,961	5,259	75.2	85.6	1,970	871	854	471
Western Maryland	Oct	873	4,180	3	4,439	4,111	543	548	50	797	699	207	102	1,180	2,829	2,748	63.7	66.8	1,610	887	1,038	887
	10 mos	873	40,500	60	42,768	38,872	5,448	4,691	490	7,239	8,023	1,910	929	12,066	27,575	27,803	64.5	71.5	15,192	8,243	9,147	6,872
Western Pacific	Oct	1,193	5,239	191	5,528	6,071	667	1,004	72	684	669	160	213	1,420	3,240	3,508	58.6	57.8	2,288	1,134	1,004	1,027
	10 mos	1,193	46,776	2,673	50,611	45,767	8,177	7,982	882	6,712	6,489	1,396	1,937	14,109	33,442	32,270	66.1	70.5	17,169	8,315	7,517	5,463
Wisconsin Central	Oct	1,046	2,574	35	2,782	3,103	361	290	32	498	386	75	81	1,036	2,077	1,993	74.7	64.2	705	224	301	641
	10 mos	1,046	25,282	453	27,366	25,975	3,891	3,692	360	4,450	4,312	691	708	10,376	20,445	20,464	74.7	78.8	6,921	2,318	2,889	2,368

(Continued from page 27)

Here's a horn with a musical tone that is pleasing on short range and still can be heard a long way off

● For town and country—specify Westinghouse Air Brake E-2B Pneuphonic Horns.

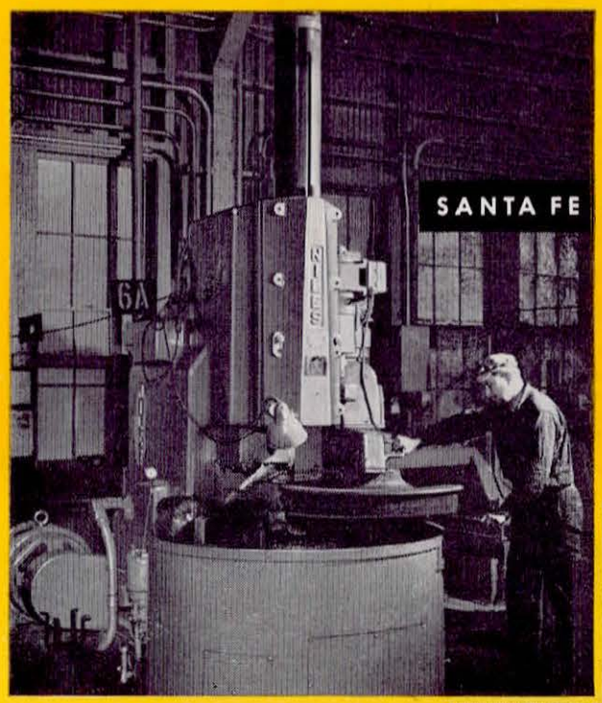
They sound a three-note chord that simulates the steam whistle. Three variations are available to suit individual preference—low, medium or high-pitched.

E-2B Horns are completely interchangeable on the present mounting base.

Westinghouse Air Brake
COMPANY

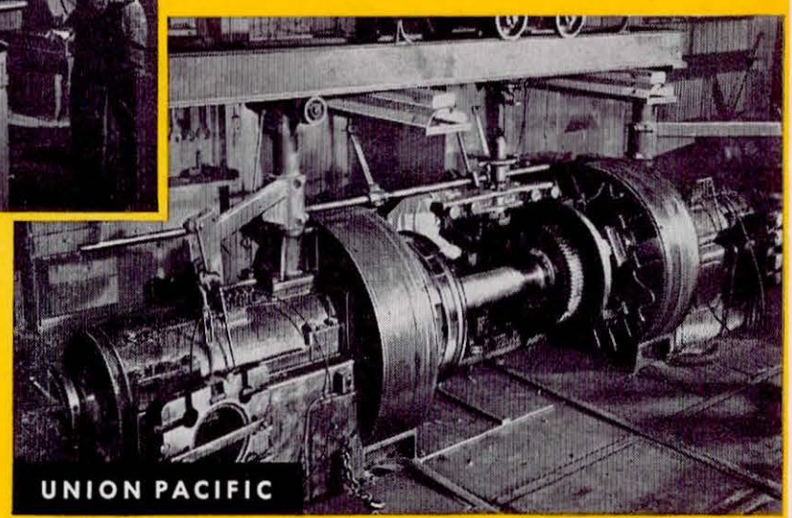
AIR BRAKE DIVISION WILMERDING, PA.

From Coast-to-Coast are cutting



Niles car wheel borer

Fast, accurate, push-button machining means big savings in time for the Atchison, Topeka & Santa Fe Railroad. Above, a car wheel is being loaded into the Niles 48" hydraulic car wheel borer in their San Bernardino (Calif.) Shops.



Niles 52" car wheel lathe

Better than 50% savings in wheel re-turning time resulted when the Union Pacific installed this Niles wheel lathe with tungsten-carbide tipped tools and profiling attachment. The UP Los Angeles Shop can turn down a wheel in about 20 minutes. Photo shows rear view of lathe finish-profiling a large wheel set.

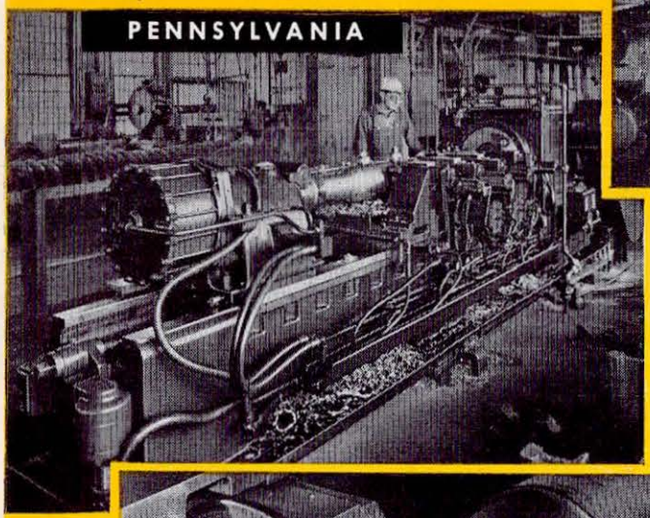
BALDWIN · BLH · LIMA-HAMILTON

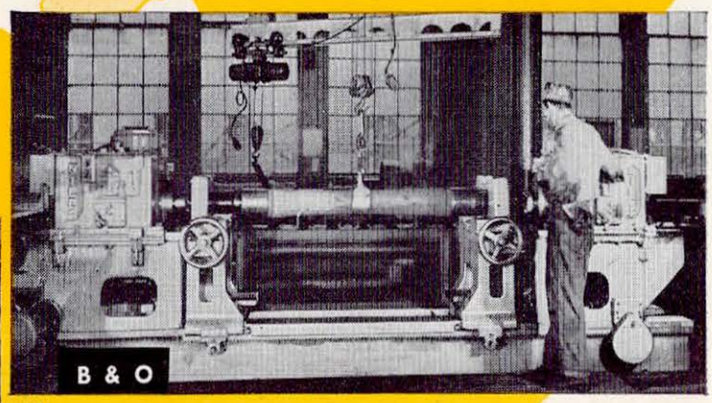
BALDWIN-

NILES TOOLS
wheel shop costs

Niles end drive axle lathe

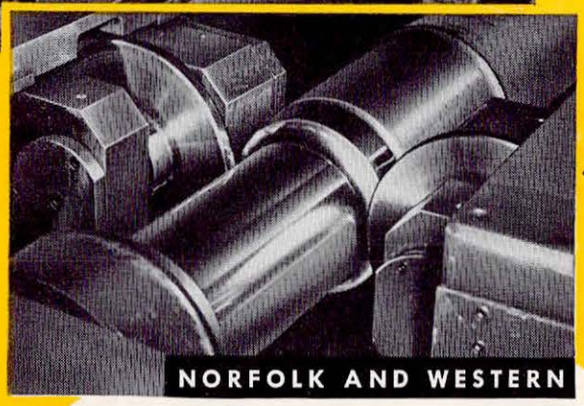
In their Altoona Shops, the Pennsylvania Railroad turns complete axles on this Niles end drive axle lathe with four carriages. This lathe has the modern controls, feeds and speeds which enable most users to machine an entire axle in less than half the time ordinary methods require.





Niles hydraulic axle centering machine

This Niles machine centers axles faster and more uniformly for the Baltimore & Ohio Railroad in their Glenwood (Pittsburgh) Shop because chucking is automatic and, therefore, more positive. Precise concentricity results in minimum waste of metal and time in machining that follows.

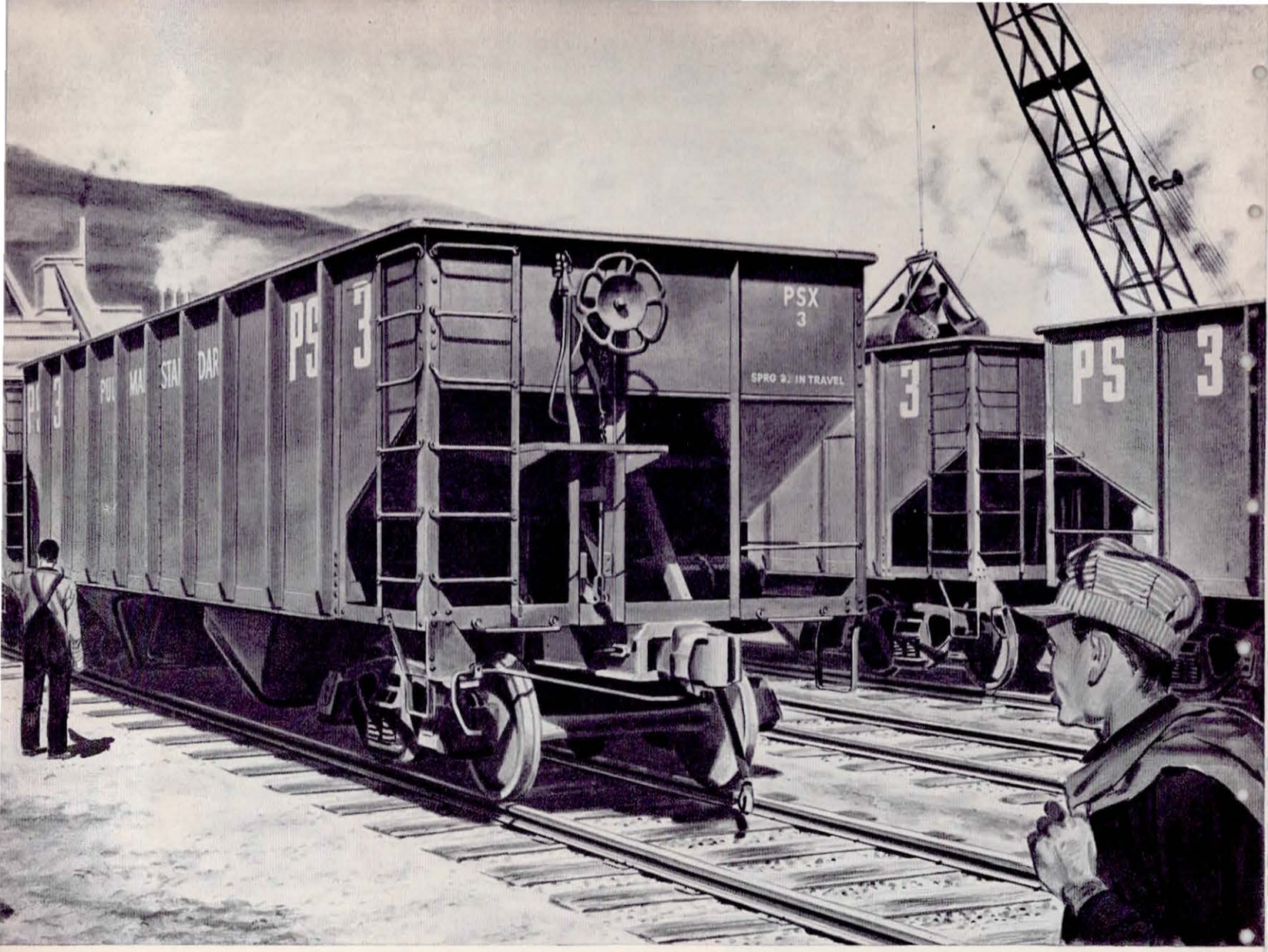


Niles hydraulic burnishing lathe

The first machine of this type built by Niles Tool Works is burnishing the outer journal of a freight axle in the Roanoke Shop of the Norfolk and Western Railway. Hydraulic power speeds all loading and adjustments, avoids operator fatigue and accidents. Photo suggests how this modern burnishing lathe produces a uniformity of finish to further reduce hot box frequency.

LIMA-HAMILTON

HAMILTON DIVISION HAMILTON, OHIO



THE PS-3 HOPPER CAR

In the development of the PS-3, three important objectives dictated welded construction. They were, to provide: (1) maximum strength at all vital points, (2) maximum corrosion resistance and (3) smooth interiors for speedy unloading.

The PS-3 Hopper Car incorporates proven advantages. Virtually every type of hopper car in service today was studied. The effects of current handling practices were prime considerations in its design.

All of the components of the PS-3 are designed and constructed to work together as a unit to produce balanced strength throughout the car.

NEW BOOKLETS

Anyone concerned with Covered Hopper Cars, Box Cars or Hopper Cars will be interested in the facts, specifications and details contained in these illustrated booklets. Write for a copy of any one or all three.

ALL 3

P-S Standardized Cars —provide top quality, economically

Have you seen the PS-3 Hopper Car? If not, you'll find it worth while to do so. Because, like the PS-1 Box Car and the PS-2 Covered Hopper Car, it affords all of the benefits of tested design and continuous production.

These cars reflect the total experience and resources of Pullman-Standard's engineers. It is the Research and Development engineers' job to help create and continually test components and completed cars. It is their assignment to always search for better ways to make better cars.

The stamina and continual improvement of the PS-1, 2 and 3 are influenced by "on-line" checking by Pullman-Standard's Sales and Service engineers. These men travel thousands of miles every month to observe performances under operating conditions—to obtain significant data on cars of all makes.

Be sure to see the standardized PS cars that are proving, to more and more railroads, that *top quality can be produced economically through standardization.*

YOUR NEEDS CREATE THE PULLMAN "STANDARD"

PULLMAN-STANDARD

CAR MANUFACTURING COMPANY

SUBSIDIARY OF PULLMAN INCORPORATED

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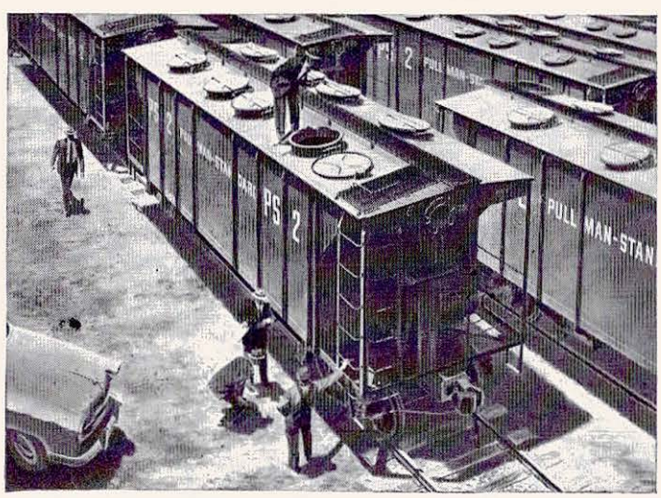
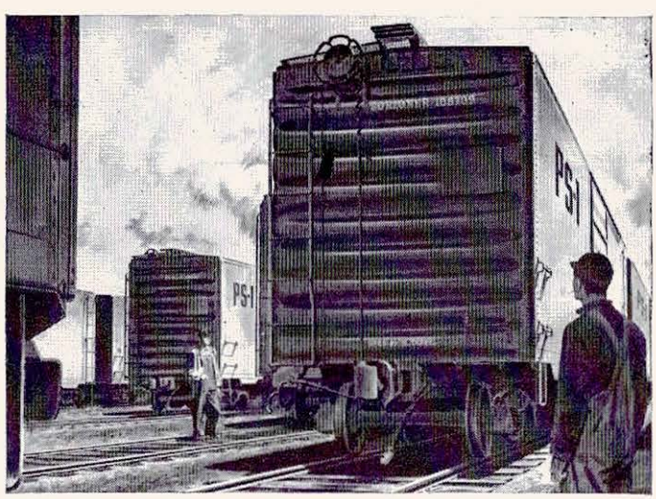


THE PS-2 COVERED HOPPER CAR

The PS-2 Covered Hopper Car presents another Pullman-Standard achievement in freight car standardization for dependability and economy.

The design is new. It permits the use of the most modern methods of car construction and production including the extensive use of automatic arc welding.

Besides stronger construction, some of the PS-2's features include: improved circular hatches; smooth self-cleaning hoppers; and a sturdier, safer roof.



THE PS-1 BOX CAR

The PS-1 is a good example of the progressing standard which is so important in the successful operation of these cars. Pullman-Standard Research and Development engineers have never stopped testing, proving and improving the standardized PS-1.

They continue to anticipate the railroads' needs for better, more economical freight cars. Under laboratory control, technicians reproduce service hazards and conditions more severe than those actually ever encountered.

YOU get more for your money than just a tractor!

When you buy a piece of Cat* equipment, you think of a lot of other things besides tough steel and yellow paint. Things you can't see or feel or touch, but that will help you make *more money this year—and year after year!*

You *know*, for instance, that you can count on profitable performance because your equipment will keep you on schedule. Its stamina *plus* on-the-spot service from your Caterpillar Dealer cuts down time to the minimum.

You *know* the bank will give you better financing on big yellow machines because of their reputation.

You *know* there are no "orphans" in the line. You can work Caterpillar machines profitably for years and *always* get parts for them—at the standard low list price.

You *know* that day after day, week after week, month after month, they will do *more* work with *less* down time at *lower* cost than any competitive units.

And, finally, you *know* that when you're ready to trade in a Cat machine you'll get more money for it—the *top* resale value in the field.

Getting ready to buy new units? Fine. Look them all over. *But look at their last cost first.* Remember what you know about Caterpillar!

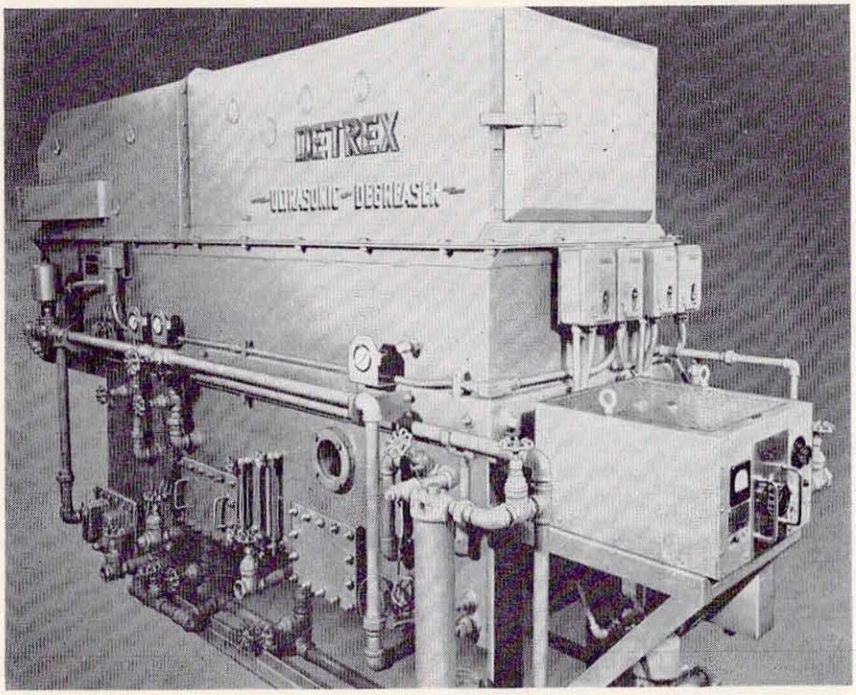
Caterpillar Tractor Co., Peoria, Illinois.

CATERPILLAR*

*Both Cat and Caterpillar are registered trademarks—®

DIESEL ENGINES
TRACTORS • MOTOR GRADERS
EARTHMOVING EQUIPMENT

What's New in Products



AN ULTRASONIC DEGREASER showing the high frequency generator in the foreground.

Ultrasonic Waves Clean Metal

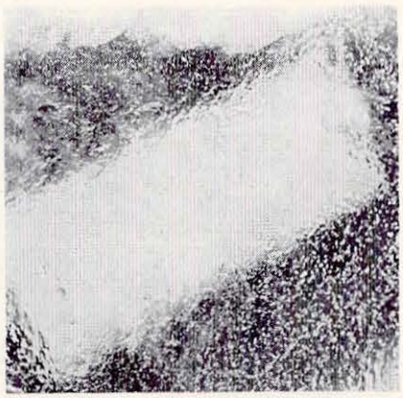
New method, using "transducer" to develop sound energy, is said to clean even intricate close-fitting parts

The Detrex Corporation, Detroit, Mich., has announced the development of a practical method of metal cleaning through the use of ultrasonic waves.

The new method, known as the Detrex Soniclean process, features an element called a transducer for developing sound energy. By employing this new element in place of the quartz previously used in ultrasonic experiments, the maker states, the limitations caused by the size and properties of quartz crystals have been overcome.

The transducer element, jointly engineered by Detrex and the Brush Electronic Company, is a curved piece of ceramic resembling a 6-in.-long pipe, cut in half along the longitudinal axis. The ceramic pieces, which can be connected in series and arranged as desired, are designed to permit focusing and flexibility.

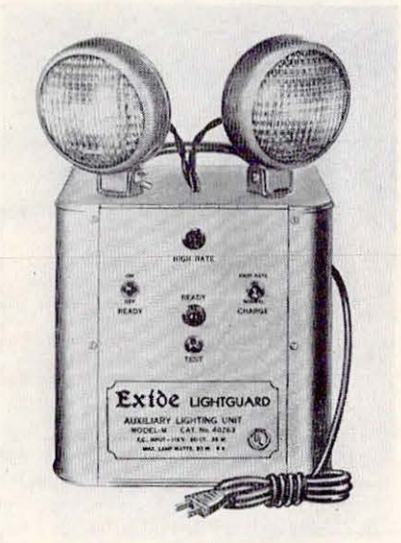
In the Soniclean process, electrical energy is transmitted to the ceramic transducer, converted into sound energy, and projected through a solvent at a frequency of 430,000 cycles per second. The solvent is trichlorethylene; however, the process is not limited entirely to this material. Because a potential of only 40 volts is required to operate the ceramic transducers, they can be safely immersed directly in the solvent.



AGITATION in the liquid caused by ultrasonic waves projected from a ceramic element, known as a transducer. Outline of the transducer can be seen only a few inches below the surface.

Material to be cleaned is placed in the solvent, either manually or by conveyor, directly in the path of greatest focal intensity of the ultrasonic waves. In this area an extreme turbulence is created, resulting in a deep and penetrating cleaning action that is said effectively to remove dirt, grease, chips and microscopic particles of soil even from intricately designed and close-fitting parts.

The high frequency generator is protected by safety and overload devices and has adjustable tuning drawers that provide frequency control •



Always-Charged Battery Light Source

Two auxiliary lighting units approved by Underwriters Laboratories are now available in a new and completely redesigned line of 6-volt emergency lighting equipment, made by the Electric Storage Battery Company, Philadelphia, Pa. Both new units, known as Exide Lightguard Models M and T, conform fully to the recently revised National Electrical Code, issued in August 1953.

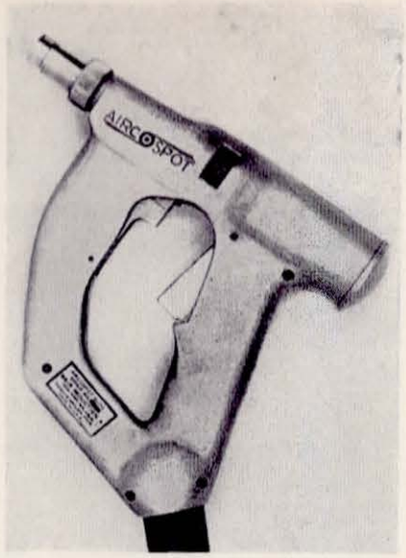
While similar to the prior model, the new units also include recently developed features that increase efficiency and service life.

Each new model is furnished with one 25-watt sealed beam lamp, but is available with two if desired. In the event of power failure, the one-lamp unit of both models will function more than eight hours. Two lamp units will furnish light continuously more than three hours.

The units are powered by Exide Type 3-COE-7 batteries, utilizing ¼-in. thick positive plates and an electrolyte

of low specific gravity to extend service life while minimizing maintenance. A highly shock resistant transparent plastic container shows each battery plate clearly.

Under normal circumstances, batteries are kept fully charged from the a.c. supply by means of a built-in trickle charger. In case of an a.c. power failure, an electrically actuated relay automatically closes to provide emergency lighting. When normal power is restored, the relay turns off the floodlights, and charging is automatically resumed •



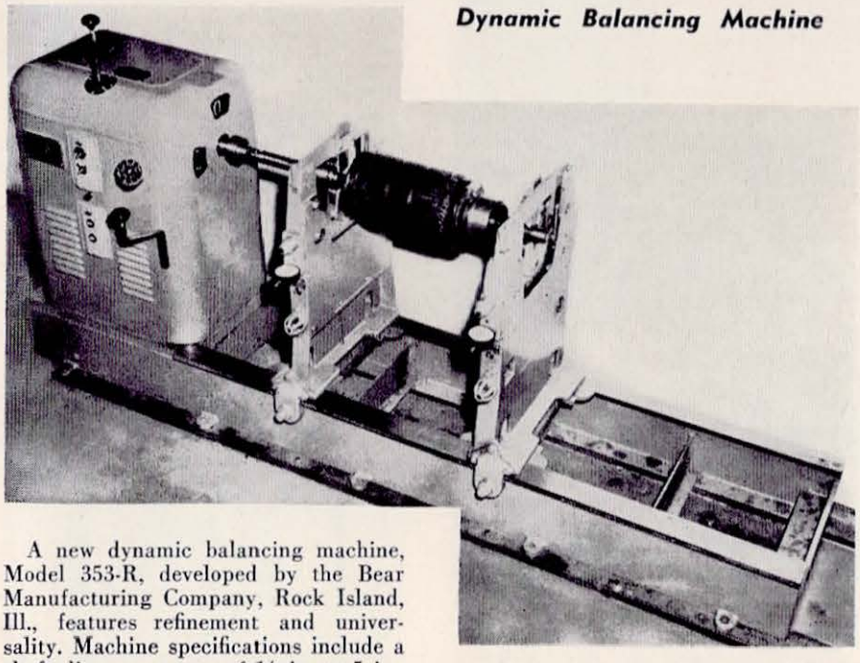
Spot Welding Gun

The Aircospot Gun, a new development of Air Reduction Sales Company, 60 East 42nd st., New York 17, is now available. It is a lightweight spot welding gun which uses a 3/32-in. nonconsumable thoriated tungsten electrode and an inert-gas shield. It makes welds on stainless steels, mild steels and alloy steels, without the aid of jigs or fixtures.

The unit consists of a hand gun, control panel and all necessary hose and cable assemblies. A standard d.c. power source, either motor generator set or rectifier type of machine, is required. The gun is water-cooled, and uses helium or argon, or a mixture of the two, for a shield. High frequency is not required. The Aircospot gun is rated at 250 amp. and welds may be made on sheet metal up to ⅛ in. in thickness. The bottom section can be of greater thickness.

The operator need only position the top sheet on the piece to which it is to be joined, position the gun and pull the trigger. The operation is completed in approximately one second •

Dynamic Balancing Machine



A new dynamic balancing machine, Model 353-R, developed by the Bear Manufacturing Company, Rock Island, Ill., features refinement and universality. Machine specifications include a shaft diameter range of ½ in. to 5 in., weight capacity of 10 lb. to 600 lb., 40 in. swing diameter capacity, and extra bed length in sections of the bolt-on type. Dual pick-up controls (automatic and manual for production and laboratory balancing), dual number drum openings for either vertical or horizontal correction, and redesigned flexing head and roller assemblies promote greater universality in the machine.

Speeds on the driven shaft are obtained through a four-speed transmission. The four speeds are 365, 535, 935 and 1,500 r.p.m. Variable speed drive is available if required. The machine is driven by a 3-hp. motor. The spark indicating mechanism is operated from an 8-volt secondary through a transformer having the same primary voltage as the motor. Dial indicator gages are full-jeweled.

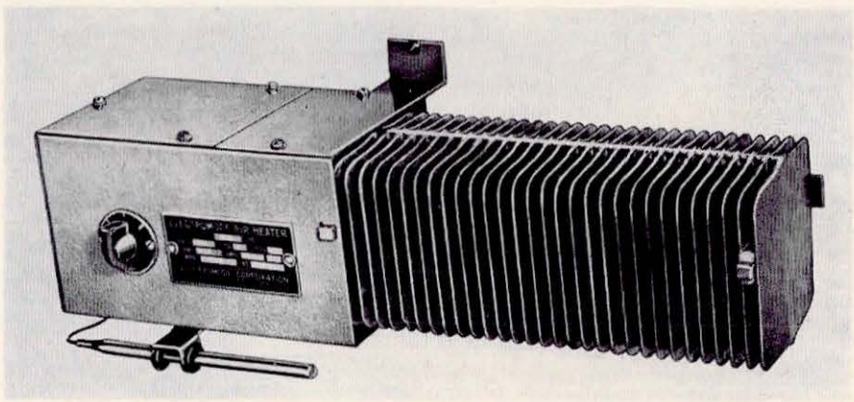
The bed length is 6 ft. Additional lengths are available in 2, 4, 6, and 8-ft. sections. Adjustable towers give 4 ft. 6 in. width capacity •

Pump House Heater

An automatic safe electric heater specifically engineered for the pump house has been made available by the Electromode Corporation, Rochester 3, N. Y. It eliminates the risk of damage caused by water pipes freezing because of inadequate heat, and the danger of fire which might be caused by unsafe means of heating.

The heater has a sealed in, cast-aluminum heating element. There are no exposed glowing red hot wires. It has the Underwriters' Laboratories approval. The built-in thermostat may be set for the temperature desired and operation is entirely automatic.

Wall brackets are provided to mount the heater and installation is simple •



TO INSTALL THIS PUMP HOUSE HEATER, it is necessary only to run two wires, 120-volt or 240-volt, to the heater connection box.

A kindly old super named Lear
Once gave a trainee this
right steer:
"What you need, you can glean
From this magazine"
Now the trainee's a foreman,
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The type of advice the kindly "super" is giving our young friend is the best advice he could get.

Regularly reading *Railway Age*, to supplement on-the-job training often makes the difference between . . . just being a time clock number that occupies a certain space or being a responsive personality that is considered supervisory timber.

Our advice, and we think it's in the same class as that of the "super", is to clip out the coupon at the bottom of this column and rush it to us posthaste. We'll carry it from there.

Railway Age 12-28-53
30 Church Street, New York 7, N. Y. Att'n: R. C. Van Ness

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Benchmarks and Yardsticks

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The handicaps that confront the railroads—principally in the form of excessive rigidity in their regulation, combined with excessive political favors for newer forms of transportation—are genuine and important and must be combatted. But of these handicaps, none is insuperable. And neither are they so great that a great deal of railway progress cannot be made in spite of them.

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So, despite the magnitude of the railroad's difficulties, there is still very little in their situation that a vigorous application of courage and aggressive commercial-mindedness could not overcome, or at least greatly alleviate. There are plenty of signs that the required degree of determination and vigorous commercial aggressiveness are being rapidly developed. This, of course, is a frame of mind which is required, not only in the traffic department, but in every department of the industry. A service, to be sold, needs more than just the right price. There isn't any price so low that it will dispose of an inferior product. And the combination of a good product and the right price still needs sales effort. J.G.L.

will reward cost reductions by increasing the volume of their patronage.

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Politics, they say, is the science of compromise —and in New York an attempt is being made to compromise capitalism and socialism. Whatever the result of this miscegenation, it won't be recognized as private enterprise, if New York State's officials manage to have their way.

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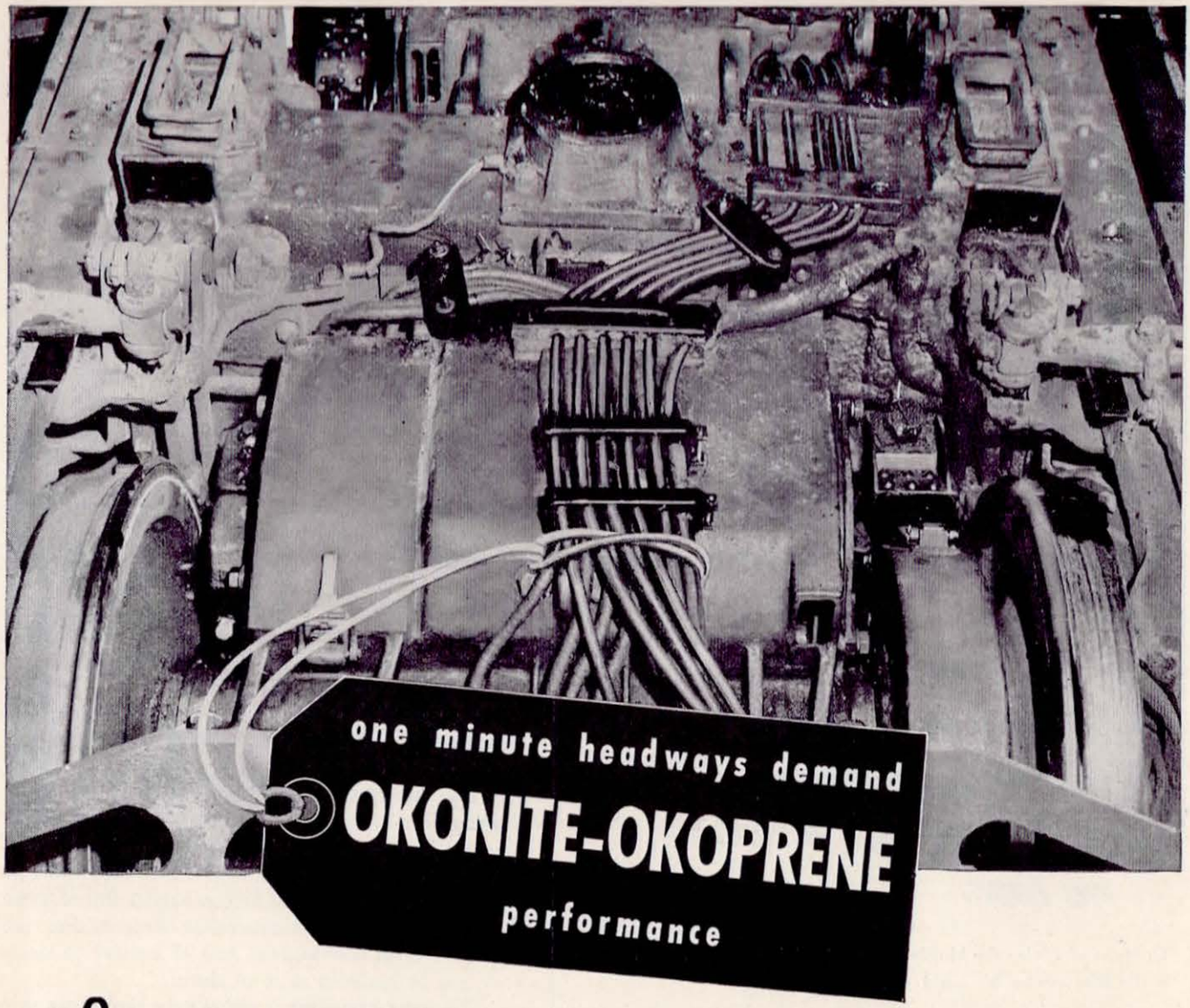

One of the outstanding achievements in transportation history is the expert handling of big city rush hour crowds. Operating on one minute headways and even less, electrical railroads and subways perform daily miracles in helping the nation get to and from work on time.

Maintaining such schedules demands electrical equipment of utmost reliability. Okonite-Okoprene, for example, is widely used for power control and motor leads, as shown in the truck photo above.

Cables so located are subjected to constant vibration and abrasion, as well as continual exposure to oil, dirt, dust and moisture. Okonite-Okoprene combats such elements with its Okoprene protective covering, a tough neoprene compound which repels all such attacks.

Beneath this rugged sheath is the Okonite insulation, the natural rubber insulation which has been proved on railroads—in a variety of uses—for nearly three-quarters of a century.

Using Okonite-Okoprene cables for all critical circuits is the best cable economy you can practice. Its long, dependable service is the reason why railroad men specify it again and again. The Okonite Company, Passaic, N. J.

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The best cable is your best policy

OKONITE SINCE 1878 *insulated wires and cables*

How the Railroads Can Have a Happy New Year

It is practically an axiom in the book publishing business that, if a book is publicly denounced as salacious and depraved, sales of the book are augmented rather than destroyed. It may be that some such axiom is also applicable in the transportation business. In any event, in a letter to this paper, one of the country's most competent analysts of railway financial performance makes the following arresting declaration:

"The railroads have been spending millions of dollars in publicizing the assertion that truck costs, due to subsidies, are below railway costs. The fact is that railroad costs are not over one-third of truck costs in mass transportation, even when the railways use obsolete equipment lightly loaded. Railway costs are probably not over 20 per cent of truck costs when modern cars are loaded to capacity."

In explaining industry problems to the public, it isn't the knowledge or opinions or intentions of the people doing the explaining that count. What counts is the impression left upon the audience by the information it is given. It may well be doubted that any railroad people believe—or have intentionally tried to induce others to believe—that railroad transportation has higher costs than transportation by truck. But it could be that railroad statements objecting to the subsidies given to their rivals have conveyed to many people the erroneous belief that railroad costs are higher, and their rivals' costs lower, than is actually the case. The effect on some people may very well have been—not to arouse their animosity against subsidies in transportation, but rather to cause them to patronize these favored agencies of transportation, and hence "get in on" the subsidies themselves.

In any event, there must be a considerable element of mystery—even in the minds of a lot of railroad men—as to how it can be that railroad transportation enjoys an enormous cost advantage over truck transportation while, at the same time, traffic continues to be diverted in such large quantities from rail to highway. The paradox is resolved, however, upon closer inspection—which usually reveals either (1) failure by the railroads to reflect their cost advantage in their competitive rates or (2) some advantage in truck transportation (e.g., greater speed or lower packing costs) which offsets higher line-haul charges.

In the heartening address which New York Central President William White made to the Investment Bankers Association on December 3 (*Railway Age,* December 7, page 11) there was no statement more timely and to the point than the following:

"In those fields where rail transportation holds the inherent advantage of efficiency, we're striking back to recover lost business. We are doing this with service and we are doing it with competitive pricing. Something about which you will hear more in the future is research on competitive pricing."

To Hold and Increase Traffic . . .

There is not the faintest shadow of a doubt that the railroads can hold and increase their ratio of the nation's total freight traffic provided they will—

1. Make rates in all competitive situations which accurately reflect the relative economy of rail service;

2. Strive relentlessly to improve the speed and reliability of their service by eliminating unnecessary detention of cars, and by improving the quality of their equipment to reduce loss and damage, and packing costs;

3. Strive to adapt their service to the overall economy of their customers' requirements, bearing in mind that transportation cost to the shipper is a much larger item than simply that of the line-haul movement (as outlined in an article by C. A. Church in *Railway Age* of December 14);

4. Strive just as resolutely to get rid of all traffic wherein railroads do not have the "inherent advantage," as they do to retain and recapture traffic in which the railroads' "inherent advantage" is plain;

5. Master the difference between the sound theories of pricing which were applicable under conditions of bygone monopoly and those applicable today under competition, and be able to explain persuasively to their customers and to public authorities the public interest in a modernized rate policy;

6. And finally, to continue and intensify their efforts for greater operating economy (endeavoring to arouse the self-interest of their employees in the pursuit of this goal)—always with the objective of passing along at least a part of their increased economies to those of their customers who

will reward cost reductions by increasing the volume of their patronage.

If the foregoing objectives are vigorously pursued, the railroad industry should be able to thrive and go forward in 1954, even though the expected easing off in the general volume of business should be relatively severe. It should be added, probably, that this list of objectives is not the product of the imagination of a writing man—but is, rather, a compilation of some of the things which many progressive railroad managers are saying to each other within their own organizations. As J. M. Symes pointed out in a recent address, from which we quoted a couple of weeks ago in this space:

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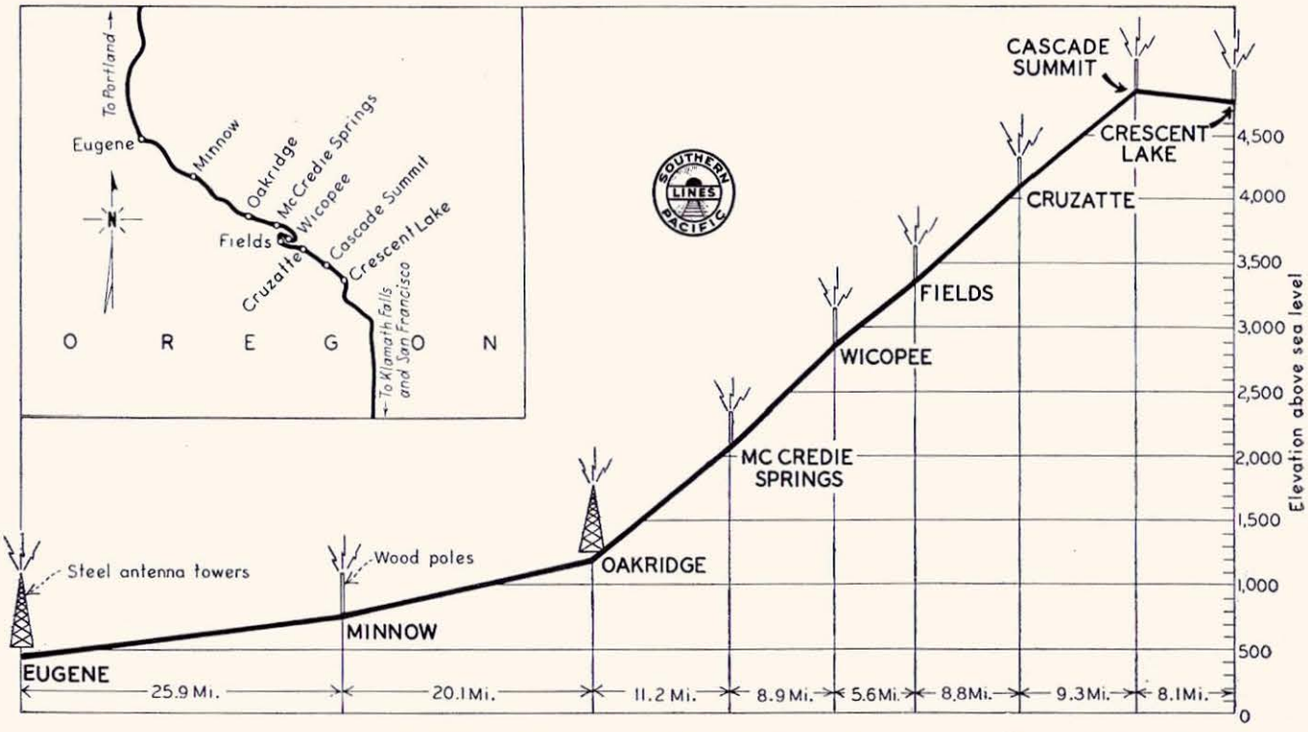
98-Mile Radio Keeps Trains Moving

OVER THE CASCADE MOUNTAINS

As an extra aid to train operation in high mountain territory, the Southern Pacific has installed train and wayside radio communication for 98 miles between Eugene, Ore., and Crescent Lake. The installation includes nine fixed wayside radio stations which are interconnected with the dispatcher's telephone train dispatching circuit, thus enabling him to call any radio-equipped train through any or all of these fixed wayside stations. All passenger locomotives operating in the territory are radio equipped, and the SP has equipped 37 diesel freight locomotives and 51 cabooses.

Radio communication has these advantages:

- Reduces break-in-twos of freight trains;
- Saves time in getting trains in and out of hand-throw sidings;
- Provides more complete information to the dispatcher concerning the location of trains;
- Bridges gaps in the pole line due to line wire breaks, especially in winter;
- Coordinates helper moves on freight trains climbing "The Hill";
- Saves time in getting freight trains out of yards,



CONDENSED PROFILE and sketch map of Eugene-Crescent Lake line.

because the engineer is informed promptly when the train is ready to depart;

- Provides communications between way stations and the dispatcher, and between trains and the dispatcher;
- Aids in the inspection of moving trains by operators and other train crews; and
- Keeps everyone informed concerning conditions and operations on the line.

The number of break-in-twos of freight trains has been considerably reduced. When the conductor sees a hot box, he is able to call the engineman and tell him to stop the train. Thus the conductor does not have to "pull the air" from the caboose.

Passing Sidings

All passing sidings in this single track territory are the hand-throw type, with some spring switches at ends of yards, as at Eugene, Oakridge, Cascade Summit and Crescent Lake. When a train has to take the siding, the conductor can "talk the engineer in," letting him know when the train is in the clear and the switch closed. When the train leaves the siding, the conductor can let the engineer know when the caboose is clear of the switch, the switch closed and the brakeman on board. Because of the many curves and tunnels on "The Hill," some passing sidings are on curves, which makes it difficult for the engineman to see the rear end of his train. In such cases the radio is especially helpful to him when he is entering or leaving such a siding.

When two trains are to meet at a passing siding, the engineman of the train on the siding, will, when his train is in the clear, radio the other train to inform that engineman that he is in the clear. Although such calling in no way supersedes the operating rules and the signal system, it aids the "peace of mind" of both enginemen.

When trains are delayed because of emergencies, the crew is able immediately to notify the dispatcher of the conditions, thus enabling him better to plan his moves. When a train stops, for example, for a hot box, the conductor can notify the dispatcher, telling him the reason and the location. When the train is under way again, the conductor can inform the dispatcher.

Most southbound freight trains need helper service getting up "The Hill," and the radio has been of help in expediting these movements. When the helper is coupled to the caboose, the conductor calls his engineman and so informs him. The engineman on the head end tells the conductor when he wants the helper to start shoving, and by talking back and forth, the movements of both locomotives can be coordinated. When the train arrives at Cascade Summit, the conductor can call his engineman and let him know when the helper has been cut off.

When a freight train is ready to leave the yard, the conductor can call the engineman and let him know that the air pressure is up, that the air brake test is o.k., and that the train is ready to depart.

When a train goes by a wayside station the operator making an inspection of the train is able to inform the train crew immediately if anything is wrong, and also if everything is all right. When trains make a meet at a passing siding, the crews inspect the trains, and inform each other via radio of conditions.

By keeping everyone informed, emergencies have often been reduced to incidents, or have been speedily remedied. Train crews are now able to report immediately to the dispatcher unusual incidents or conditions affecting the prompt or safe movement of trains, such as forest fires, heavy snow fall or fallen trees.

Dispatcher Control Unit

A dispatcher control unit containing telephone-type keys with associated indication lamps, a volume control knob, a microphone and a loudspeaker are on the dispatcher's desk. When the lower right key on the control unit is in the normal position or "intercom," all incoming calls from wayside station operators on the line-wire circuit are reproduced in the loudspeaker. To answer, the dispatcher presses his foot treadle and speaks into his microphone.

The wayside station operator has on his desk a microphone and a wayside control unit which contains three pushbuttons, with associated indication lamps, a radio channel selection switch, volume control knobs for radio and telephone line and a built-in loudspeaker, a microphone and a "power off" indication light. The control unit is normally connected so that the operator hears calls from the dispatcher and from any radio-equipped train within range of his fixed wayside station. To answer the dispatcher, the operator presses his "intercom" button (which prevents his voice from going out on the radio), presses his foot treadle and speaks into his microphone.

In the new system, if the dispatcher makes a voice call for an operator at some station, and receives no answer, he can (as part of the new system) send out a special "on-off" control that will ring a bell in the station and then return an "answer back" to give the dispatcher verification of his call.

Conductor Calls Dispatcher

Occasionally an emergency may arise in which a conductor or engineman will wish to speak to the dispatcher. As an example, the engineer on a train who might be confronted with an emergency condition could call the operator at Oakridge and ask to talk to the dispatcher. The Oakridge operator could then call the dispatcher and tell him that the engineman wanted to talk to him and then by pressing the "dispatcher" button on his radio, place it on the telephone line.

The dispatcher at Eugene would then pull down his "radio" key (bottom row left) and raise the key in the top row of his control unit marked "Oakridge." The dispatcher would then step on his foot switch and be connected to the Oakridge transmitter. When speaking into the microphone his voice would go by wire circuit to Oakridge and then by radio to the train.

Upon completion of the conversation, the Oakridge operator would press his "intercom" button, which would return his station to normal operation. Meanwhile, the dispatcher, would return his "Oakridge" key to center position as well as the "radio" button.

An incoming compression amplifier at the dispatcher's

office gives all incoming calls the necessary gain to be reproduced in the loudspeaker, at a uniform level, regardless of the variations in signal strength. Thus the voices of the Oakridge operator and the engineman on the train are reproduced in the dispatcher's loudspeaker at the same level. Duplex or "break-in" is also provided so that incoming calls are heard on the dispatcher's loudspeaker even though he is sending a message over the line.

How Radio Bridges Line Wire Breaks

If the line wire breaks, the radio can be used to bridge the break, enabling the dispatcher to maintain communications with the wayside stations. If, for example, the line wire breaks between McCredie Springs and Wicopee, the dispatcher, after being informed of the break by the McCredie Springs operator, will raise his "radio" key and the "McCredie Springs" key. This will cause his voice, when he calls Wicopee, to go by line wire to McCredie Springs, then via that wayside station radio to Wicopee. This is effected by the McCredie Springs operator pressing his "dispatcher" button to allow the men at Eugene to control his radio station. He also raises his frequency selector key to channel No. 2, used for station-to-station radio.

The Wicopee operator, hearing the dispatcher call him, presses his "local" button and raises his frequency selector key to channel No. 2, and answers via radio. His voice goes by radio to McCredie Springs, thence via wire line to Eugene. The Wicopee operator also raises a special "emergency" key which puts the station on the wire line south, for receiving all the time. The operators at Fields, Cruzatte, Cascade Summit, and Crescent Lake also raise their "emergency" keys which cause a special tone to be superimposed on the line when they operate their foot treadles which "keys" the radio at Wicopee to transmit by radio the speech from these operators that is carried by the line wires to Wicopee. With these connections established, radio "bridges" the gap where the line wires are down.

Because two dispatchers handle the separate sections of the Eugene-Crescent Lake territory, the Southern Pacific installed a separate radio "patch" between Eugene and Oakridge, consisting of two radio stations, one at Eugene, the other at Oakridge. These stations operate on a frequency of 160.29 mc. which is different from the regular end-to-end or train-to-wayside frequencies. This radio "patch" is for the dispatcher who directs train movements in the Oakridge-Crescent Lake territory, and is used by him when a line wire break occurs between Eugene and Oakridge. The Oakridge operator has a separate microphone and control unit for the "patch" station. Thus, when the line wire circuit is broken between Eugene and Oakridge, this dispatcher talks to Oakridge directly via radio.

This radio project includes two frequencies, channel No. 1 at 161.79 mc. for end-to-end radio on trains, and channel No. 2 at 161.55 mc. for train-to-wayside radio. Channel No. 2 is also used between wayside stations, and is the frequency used when dispatchers talk over a line wire break.

Each fixed wayside station has two complete sets of radio equipment including antennas, and two sets of power generating equipment. One set is used for normal operation and the other for standby. Control units and equipment are in the offices with the radio and power generating equipment in a sheet metal house outside the station.

The radio equipment in the locomotives consists of plug-in rack-mounted transmitter, receiver and power supply, a handset, remote control unit, a loudspeaker and antenna. The remote control unit has a volume control knob and a frequency selector switch for channel No. 1 or No. 2. For end-to-end operation, the switch is raised for channel No. 1. When the engineer wants to talk to a wayside station, he pulls the switch down for channel No. 2. The handset and remote control unit are mounted on the throttle control panel, at the engineer's left. The loudspeaker is mounted over the windshield in the center of the cab.

The radio-equipped cabooses on the SP Cascade line are all-steel with bay windows, and are marked with "R" below their number. The radio equipment, the same as that in the locomotive, is mounted on a partition to the left of, and over, the conductor's desk. The remote control unit and handset are mounted on a partition behind the seat in the bay, and are within easy reach of the man seated in the bay, as well as the conductor seated at his desk.

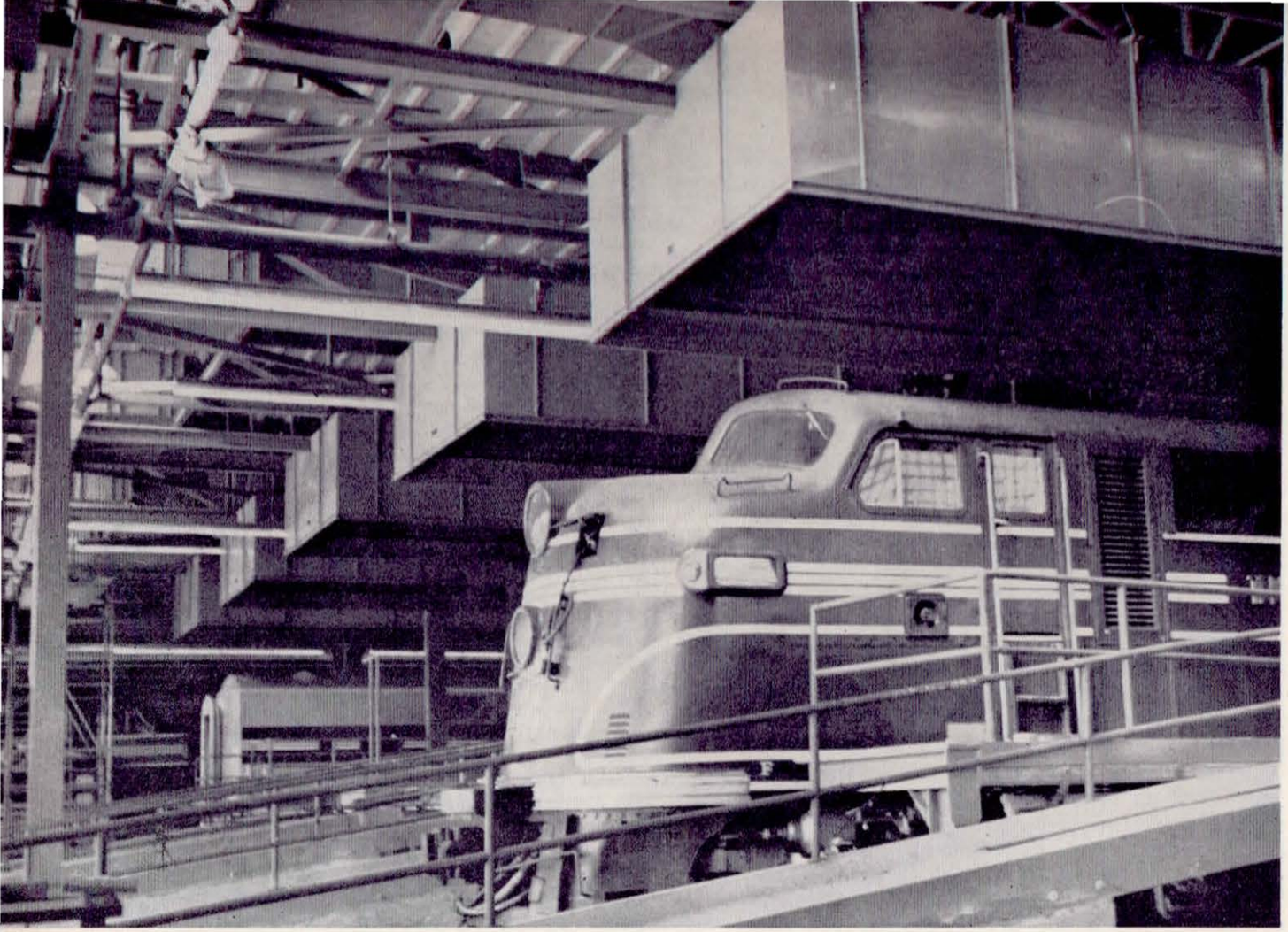
The project was planned and constructed by Southern Pacific forces under the jurisdiction of A. E. DeMattei, superintendent of communications.

LINE CLIMBS 1.8 PER CENT GRADE

The Cascade territory is part of the Southern Pacific main line from Portland, Ore., south through Eugene, Klamath Falls, Dunsmuir, Cal., and via the Sacramento valley to San Francisco. Beginning at Eugene (elevation 426 ft.), the railroad climbs for 25.9 mi. to Minnow, 946 ft., thence continues south, for 20.1 mi. to an elevation of 1,206 ft. at Oakridge at the base of "The Hill." From this point there is an average grade of 1.8 per cent for 43.8 miles to Cascade Summit, (elev. 4,840 ft.) and then a drop for 8.1 mi. to Crescent Lake, 4,799 ft. elevation. In the 43.8 miles between Oakridge and Cascade Summit there are numerous curves and 22 tunnels, totaling 23,040 ft. in length. Heavy snowfall each winter also adds to the difficulty of train operation.

Traffic includes six scheduled passenger trains daily and from 14 to 18 freights daily. Helper locomotives are used on most freight trains between Oakridge and Cascade Summit to get them up "The Hill." Two dispatchers, both at Eugene, direct train movements over this portion of the Cascade line. One dispatcher directs movements from Eugene to Oakridge, and the other those from Oakridge to Crescent Lake, at the south end of the division. The dispatcher's radio equipment as well as the radio equipment at each wayside station is interconnected to the telephone train dispatching circuit.

Eight of the radio wayside stations are train order offices open 24 hours a day; i.e., Eugene, Minnow, Oakridge, McCredie Springs, Wicopee, Cruzatte, Cascade Summit and Crescent Lake. The other wayside station, Fields, is open only during daylight hours.



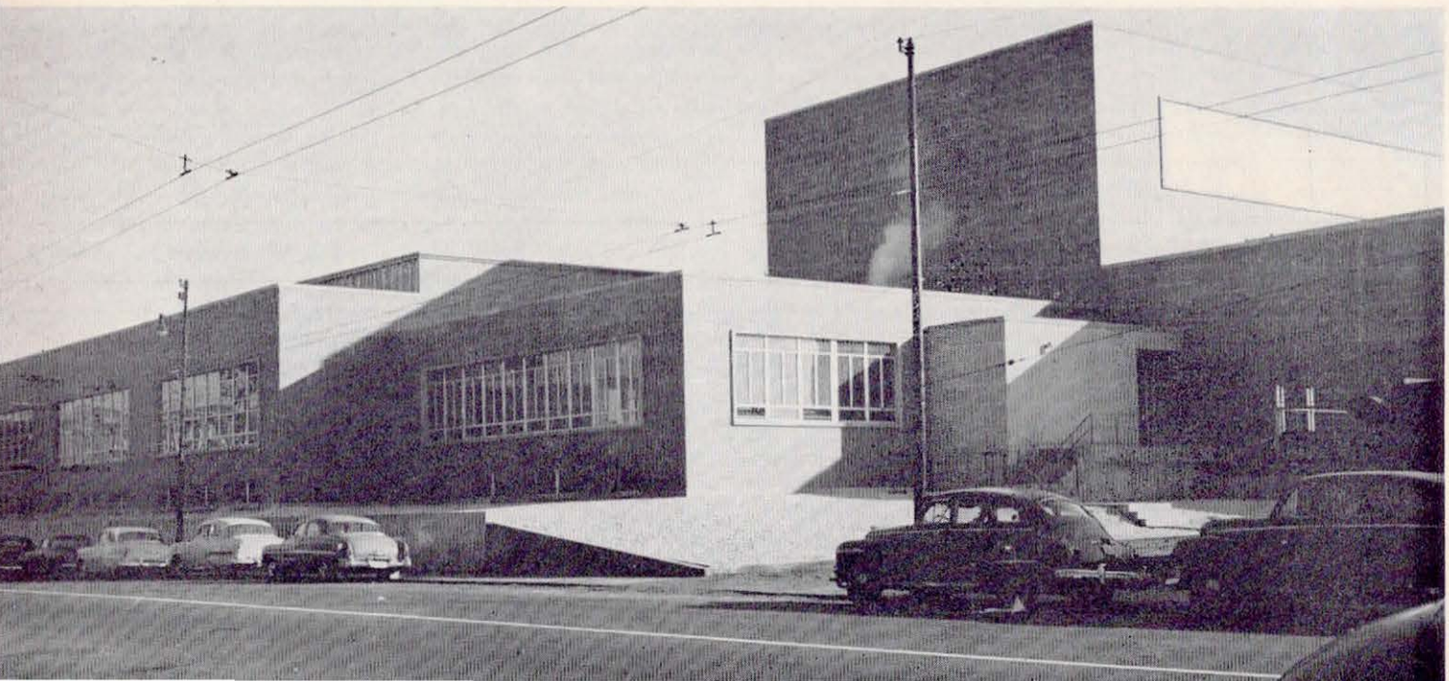
OVER EACH TRACK in the servicing area are exhaust hoods through which obnoxious engine exhaust fumes are drawn off.

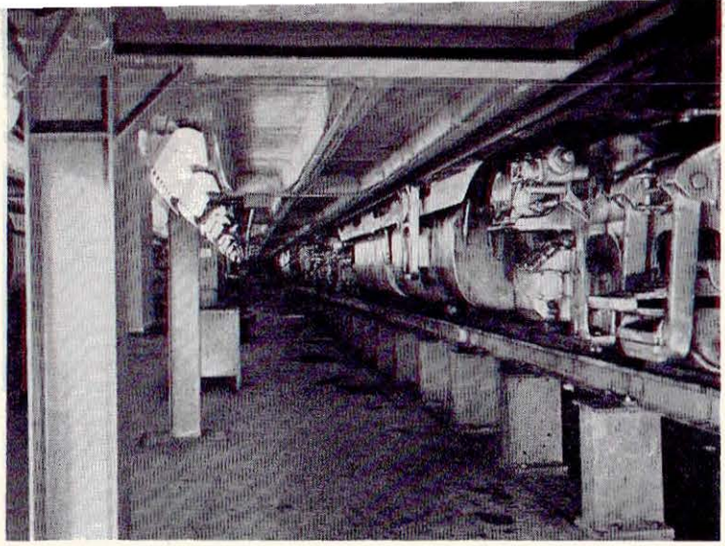
EXHAUST HOODS HIGHLIGHT . . .

New Rock Island Diesel Shop

Effective removal of locomotive exhaust fumes is accomplished by 140-ft. long exhaust canopy over each servicing track

MODERN DESIGN of the new shop building harmonizes with the road's test laboratory building, out of view at the right.





GREASE MONKEY'S VIEW of diesel units spotted on the servicing tracks, as seen looking north.

HIGH BAY is equipped with overhead crane and truck drop table to handle moderately heavy repairs.

It has long been the belief of many railroaders that, when it comes to diesel servicing shops, you either have good ventilation, or you have adequate heating—you never have both. The Chicago, Rock Island & Pacific, however, is getting both by employing an effective exhaust-canopy arrangement in conjunction with an automatically controlled heating system in its new $1-million diesel locomotive servicing shop at Forty-Seventh street and Wentworth avenue, Chicago.

This structure was constructed primarily for servicing and making running repairs to diesel locomotives used in passenger and suburban service, and also switchers. Currently it is handling 40 passenger locomotives, 16 road-switcher units used in suburban service, and four switchers.

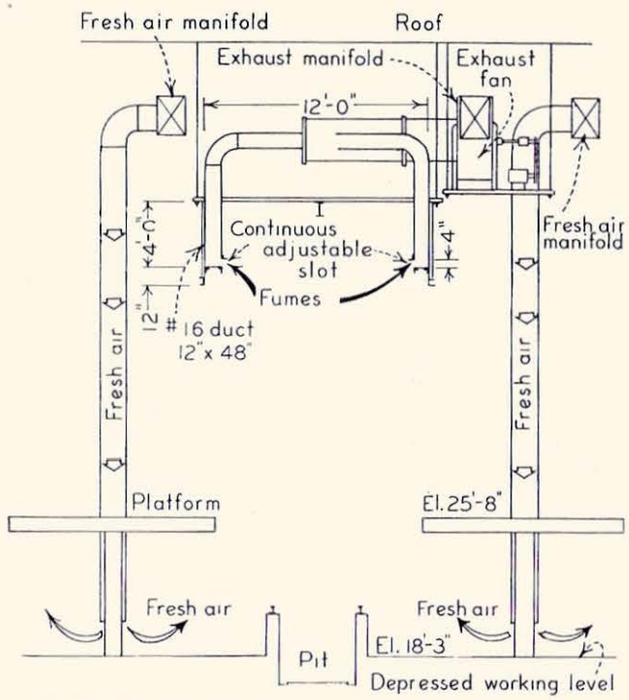
In all respects this new facility follows the latest concepts of diesel shop design. It is of brick, concrete and steel construction, with the truss-supported roof consisting of precast concrete slabs topped by 1 in. of rigid insulation and built-up roofing. Fenestration consists of extensive areas of both wire glass and glass blocks.

In overall dimensions the shop is 237 ft. 6 in. by 267 ft. 4 in., with the tracks entering from the south end. It is divided into four general areas: The servicing area; the heavy repair section in a high bay; an area containing machine shop and allied facilities; and a storage, office and miscellaneous facilities area.

The servicing area consists of six tracks with conventional pits, depressed areas and elevated platforms 143 ft. long, permitting the simultaneous servicing of two locomotive units on each track. The heavy repair section contains two tracks and has a 90-ton Whiting drop table and a truck-washing pit. A 30-ton Shepard-Niles traveling crane operates over the 11,020-sq. ft. heavy repair area for handling trucks, generators, engines, etc. Ramps at the north end of this area lead up to the elevated platform level and down to the level of the machine shop and related facilities.

The rails of the six servicing tracks are supported on steel pedestals spaced on 4½-ft. centers. The decks of the elevated working platforms are of cellular metal construction, topped with concrete, and are of cantilever design, each being supported on a single line of steel columns. The floor of the heavy service bay is at top-of-rail elevation throughout.

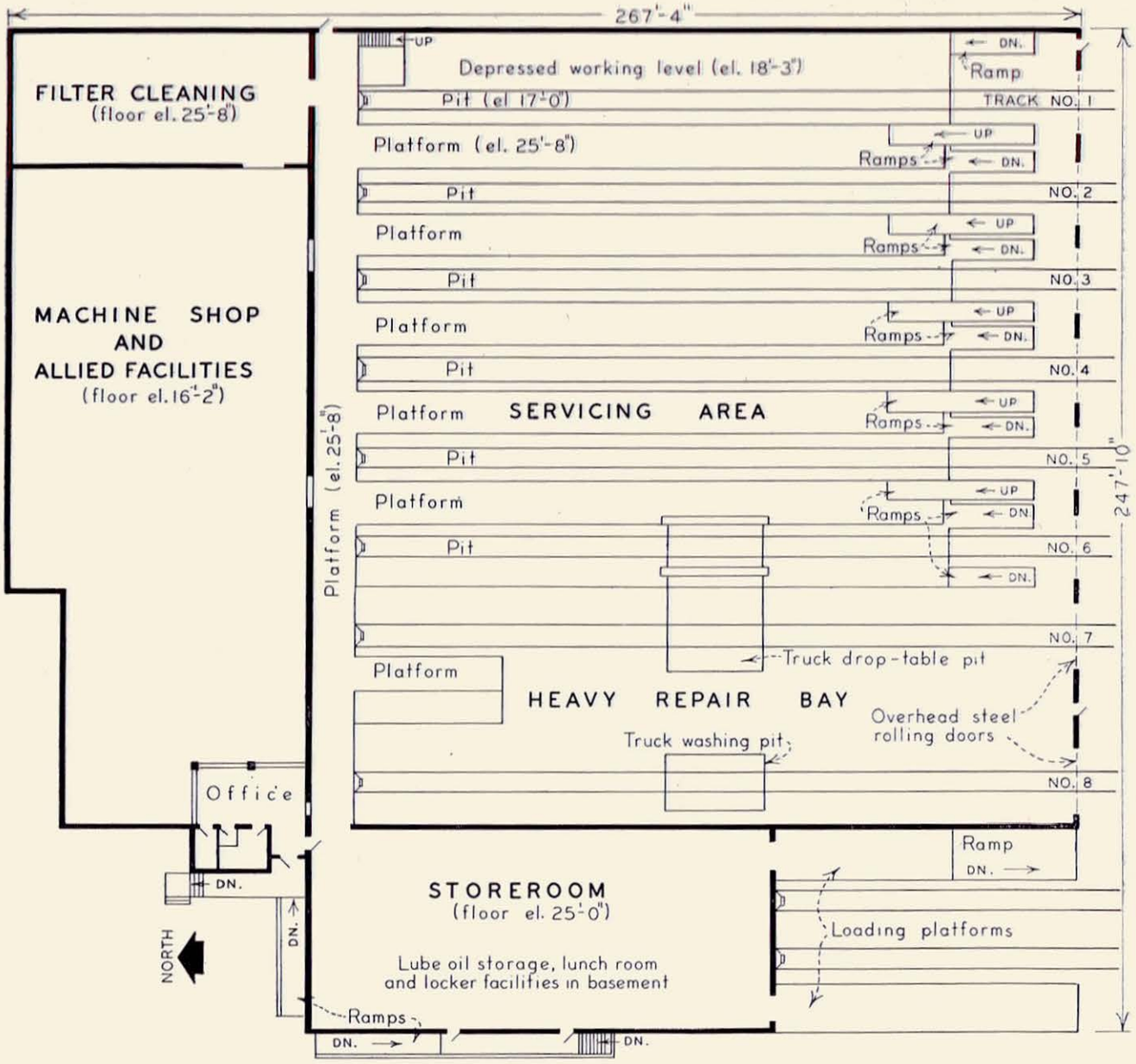
All the tracks are stub end and enter the building through openings fitted with power-operated overhead steel rolling doors. Ramps at this end of the building lead up and down to the service platforms and depressed working areas.



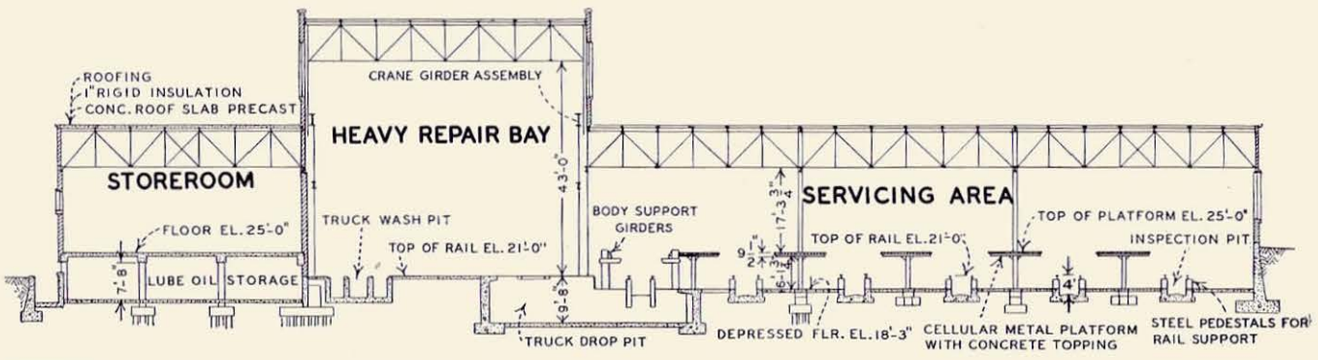
FRESH AIR, drawn in by fans and heated, when necessary, is piped to the depressed floor level beneath the platforms. Automatic switching arrangement assures operation of fresh air intake fans whenever exhaust fans are operating. When exhaust fans are idle, intake fans recirculate the air in the servicing area.

At the north end of the servicing area ramps lead down from each of the depressed working areas to the lower level at that end of the building. The machine shop, tool cribs and related facilities are in this area, where cylinder liners, pistons and heads are honed and reconditioned. This area is also used for making minor electrical repairs, for painting, air brake servicing, and other miscellaneous light repairs. Heavy repairs, such as armature rewinding and complete engine overhauling, are handled at the road's shops at Silvis, Ill.

In the west wing of the building, and also on the lower level, are the lubricating oil storage and pumping facilities, a lunch room, and toilet and locker facilities. Lubricating oil is piped into this area directly from tank



VARIOUS LEVELS of working areas in the shop, not readily apparent in this floor plan, are connected by ramps.



SECTION through the south end of the building showing the location of tracks, platforms and major facilities.

MACHINE SHOP AREA is equipped to recondition pistons, liners and heads, and perform relatively light repair jobs.

STOREROOM carries complete inventory of parts and materials used in the diesel servicing shop.

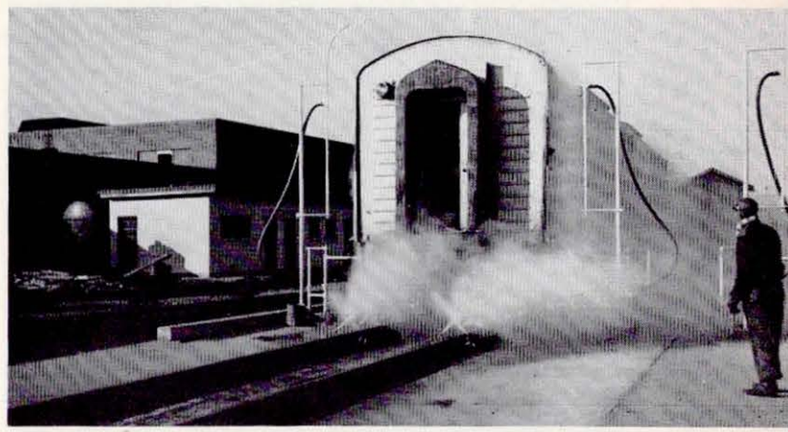
cars spotted on tracks at the southwest corner of the building. Fresh oil is pumped from the storage room to service outlets at the platforms. Oil drained from locomotives is pumped to storage tanks in this same room whence it is ultimately loaded into tank cars for shipment to the road's Silvis facilities for reconditioning.

An air-filter cleaning room is provided at the northeast corner of the building on the same level as the elevated working platforms. Also on this level, at the northwest corner, are the shop offices. A storeroom occupies the west wing of the building over the lubricating oil, locker, toilet and lunch rooms. Materials and supplies are loaded and unloaded from an outside platform on the south side of the storeroom which is served by two tracks.

Fluorescent lighting is used in the pit areas, over the platforms, and in all other areas of the building with the exception of the heavy repair bay, where 400-watt mercury vapor lights have been installed.

Each canopy in the exhaust system in the service section (see accompanying diagram for details of construction) is equipped with two fans of 8,000 cu. ft. per min. capacity which deliver exhaust fumes to the outside atmosphere through aluminum louvers. The pits and the platform regions between and adjacent to the servicing tracks are heated by 12 Trane "Torridor" heaters mounted in the roof structure. Heated air from these heaters is delivered through manifolds to vertical ducts which carry it down to the working areas. There are seven lines of these ducts in the service shop, five of them so located intermediately that the individual ducts extend down through the working platforms. The outlet ends of these ducts are 45 in. above the depressed working areas.

Automatic control of the heating and ventilating system is incorporated to the extent that thermostats below the working platforms control the operation of the heaters, and a switching arrangement automatically opens the fresh air intake dampers of the heating system whenever the exhaust fans are in operation. When the exhaust fans are not operating, fresh-air intake dampers of the heating system are closed and interior dampers are opened to recirculate the air in the service area. Smaller unit heaters, some of the projection type, are employed for heating other parts of the building. Also there are various systems of natural and mechanical ventilation. Unit heaters are installed directly above each of the eight rolling doors at the south end of the service area. Steam for operation of the heaters is supplied from an existing power plant located in the vicinity.

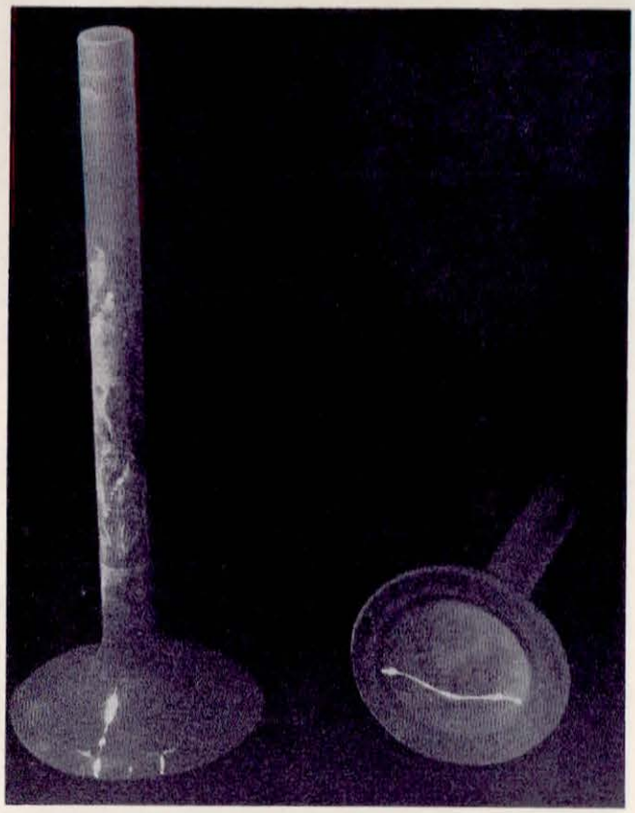


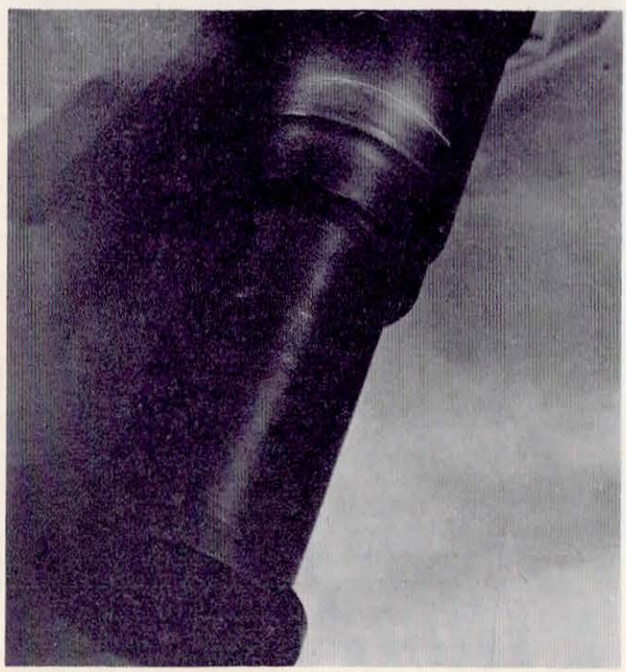
OUTDOOR FACILITIES include this locomotive body and truck-cleaning unit.

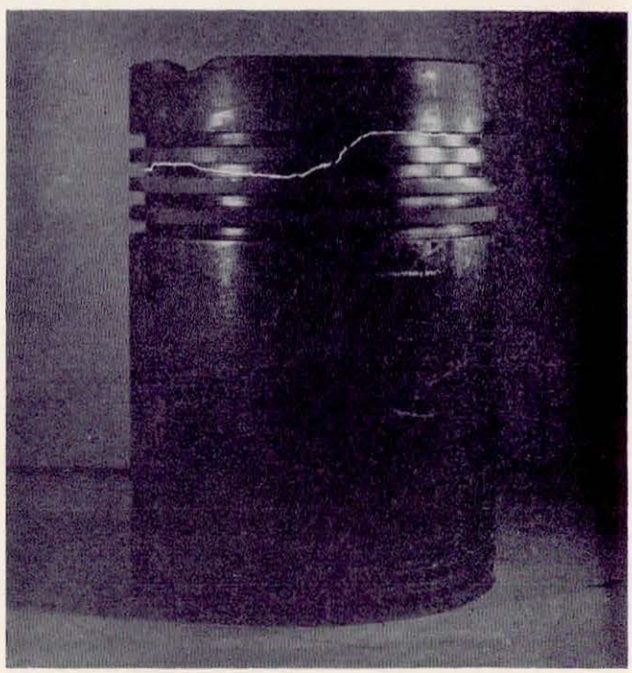
In addition to the new building, several outdoor facilities were constructed south of the shop. These include sanding, fueling, watering and washing facilities on a 40-ft. by 307-ft. concrete slab with two tracks; water, fuel and sand storage tanks; a service building; and related trackage, piping and wiring. The service building, a 69-ft. by 16-ft. concrete block structure, contains pumps and related equipment for supplying the servicing and washing platform with engine-body cleaning solution, truck-cleaning solvent, boiler and radiator water, fuel oil, steam, and rinse water. A sanding tank at the south end of the servicing platform is supplied from a sand storage tank adjacent to and south of the service building. Two underground, 20,000-gal. capacity fuel-oil storage tanks, a fuel-oil unloading crane and an underground treated-water storage tank are located adjacent to and north of the service building.

Construction of these new diesel facilities, was under the general supervision of W. B. Throckmorton, chief engineer, and T. J. Engle, engineer of buildings. W. C. Humphreys, architect, working in conjunction with the road's mechanical department, designed and supervised construction of the shop building. The SN Nielsen Company, Chicago, was the general contractor. Installation of the heating system was done under contract by the Davis Construction Company, Chicago, and the ventilation system was installed by the Narowetz Heating & Ventilating Co., Chicago. The contractor on the lighting work was Hyre Electric Company, Chicago.

How the PRR Uses Non-Destructive Testing







TYPICAL DEFECTS discovered by modern test methods.

The Pennsylvania in 1953 ran non-destructive tests on 130,000 axles of all types, 140,000 diesel parts, and 38,000 non-magnetic parts. The road has 56 test installations at 26 shops, utilizing trained personnel. This program was started in a small way in 1932, and according to H. T. Cover, PRR assistant vice-president and chief of motive power, "the benefits of this entire program to the railroad in lives and money saved are incalculable."

Mr. Cover made these remarks in opening the recent Third National Conference on Non-Destructive Testing of Railroad Parts, held in Chicago and sponsored by the Magnaflux Corporation. Excerpts from his analysis of the Pennsylvania's activities in this field follow:

Early Axle Failures Studied

In 1932, as a result of the fatigue failure of several electric locomotive axles, the Pennsylvania investigated every means of crack detection available at that time in

order that all electric locomotive axles might be properly inspected and further failures avoided. In this investigation, various drop-of-potential methods were used in which the currents ranged from a few amperes to 22,000. Pick-up devices varied from simple pointed prods to rather elaborate rotating mechanisms. These devices were applied not only to the exterior surfaces of the axles but also in the 2-in. bore in the center of the axles.

At one time in the investigation a detection device was used quite similar to that now employed in the Sperry rail test cars for the detection of transverse fissures. Sonic methods similar to those in current use were tried, but they lacked the sensitivity required for the detection of fatigue cracks in the initial stage of development. A number of alternating current methods were tried at frequencies extending from 60 cycles to 10 kilocycles.

Magnaflux inspection proved to be the best practical means available and the method was immediately employed to test all of these axles. This investigation resulted in improvements in both steel and design which have not only eliminated trouble with this class of axle, but have led to similar improvements in other axles.

Impressed by the success of the electric-locomotive axle program, in 1934 the Pennsylvania established system-wide Magnaflux inspection in all shops handling axles and set up rather elaborate records for control and analysis. As quickly as possible, this program was extended to include the testing of steam-locomotive parts. While steam locomotives now have been largely replaced by diesel-electrics, the failure of main and side rods and valve motion parts had been practically eliminated.

The introduction of any additional inspection operation in shops accustomed to rapid production naturally meets with some opposition from the shop people until the need for the operation is clearly demonstrated. Fortunately, the successful detection of defects in the various parts was so convincing that in a short time the strongest opponents of the new inspection procedure became its warmest advocates. In fact, it became a problem to confine its application to only those parts which could be handled effectively rather than to include hundreds of attempted applications for which the method was not well adapted.

Experience with Magnetic Writing

In 1939, the Pennsylvania placed an all roller-bearing Class S-1 locomotive on display at the World's Fair in New York. Before installation on the locomotive, the beautifully finished main and side rods were given magnetic particle examination. To everyone's dismay, all of them presented indications quite similar to those produced by quench cracks. The rods were sent to the test department at Altoona where an extensive investigation was conducted. This investigation showed that the supposed crack indications were good examples of magnetic writing, the first encountered in the Pennsylvania studies. This experience originated a study of magnetic writing which still continues as the variety of test applications increases.

As Pennsylvania experience with magnetic particle testing increased, tools and many miscellaneous car, locomotive and machine parts were added to the other items tested. It was inevitable that, with dieselization initiated in 1947, the railroad immediately set up a comprehensive system of diesel parts examination in which every part of the engine subject to excessive failures in service is tested. Magnaflux is supplemented by two other useful tools which have proved their value in this work: namely, Magnaglo for smooth, polished steel parts and tools, and Zyglo for aluminum pistons, non-magnetic valves and many miscellaneous non-ferrous parts.

Centralized Test Control

The necessity for centralized technical control of non-destructive methods of testing became evident early in Pennsylvania experience. Therefore, the engineer of tests has been made responsible for study and adaptation of new methods and techniques and technical supervision of their application in the shops. New methods and ideas are first investigated in the laboratory at Altoona. If found worthy of service trial, they are next placed in operation in a typical shop under close supervision. Then, if successful under actual operating conditions, they are made available to the system.

The Pennsylvania has found it necessary to prepare its own instructions for the use of the various methods mentioned. While these instructions are based on familiar fundamental principles, they include the special provisions necessary for proper integration with the shop organization.

Close Coordination

Another important result of organizing this work under the technical control of the engineer of tests is the close coordination effected between the finding of cracked parts and the investigations of failed parts which likewise clear through the same personnel in the PRR test department. This coordination has resulted in the early discovery of defective materials and equipment responsible for the origin of failures which would otherwise have been difficult of solution due to the badly fractured and battered condition of related parts after failure. This method of organization has proved particularly valuable in the investigation of cast-iron parts in diesel-electric engines.

Operator qualification is a vital necessity in the application of non-destructive testing. On the Pennsylvania, prospective operators are selected first on the basis of shop experience, familiarity with the parts which they will be required to test, and an eyesight examination by the medical department. Then they are permitted to work with a qualified operator for a short time during which they become familiar with the requirements of the job. Next, they are sent to the test department at Altoona, where they are given a written examination on the instructions and theory applying to this work.

Upon the successful completion of the written examination, trainees are required to test a number of parts, most of which previously have been found cracked in routine shop inspection, using typical shop equipment and executing proper reports. Several of these *(Continued on page 51)*

New Bearing Uses Less Oil

By Z. G. BRANDENSTEIN and J. B. MACPHERSON
Locomotive and Car Equipment Department
General Electric Company
Erie, Pa.

A general change has been made by all manufacturers in the method of lubricating traction motor axle suspension bearings. Previously lubricated with wool waste, these bearings are now lubricated with felt wick lubricator assemblies. Bearings lubricated by felt wicks have greater oil consumption than those lubricated with wool waste.

A traction motor suspension bearing has been developed for General Electric's GE-752 traction motor that will enable over 90 per cent of the locomotives so equipped to operate from monthly inspection to monthly inspection without addition of oil to the axle caps. Moreover, the design is such that railroads can modify old style bearings (as illustrated) to obtain this same benefit.

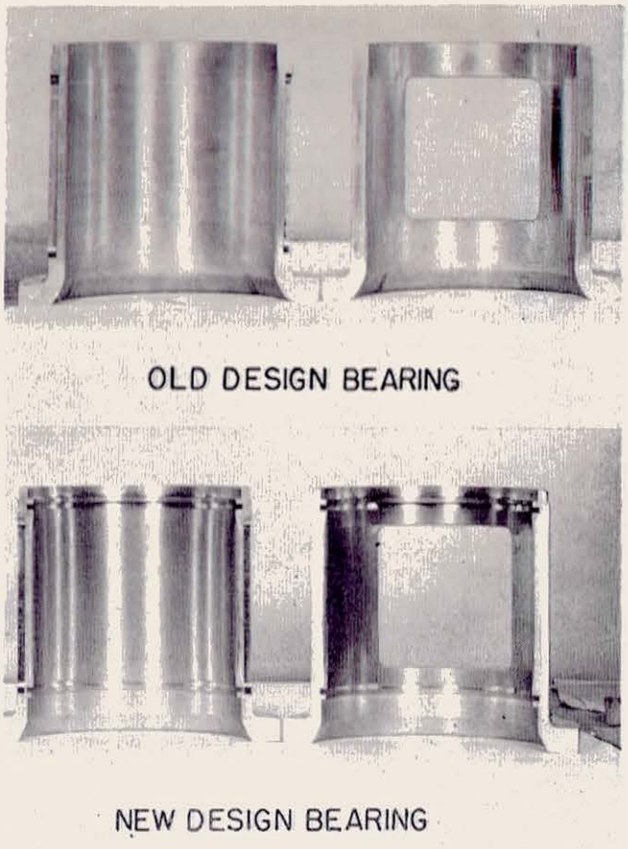
Development and Test

A program of development to overcome this deficiency of the felt wick lubricator, started over two years ago, was recently concluded. This resulted in reducing oil consumption to one-third the original value, and also provided a new concept of flange wear.

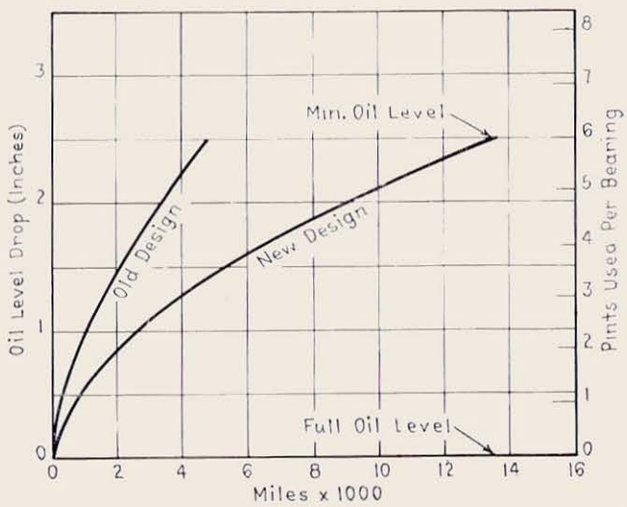
The goal of the program was to develop improvements in such a way that the lining then in production could be modernized in the field with a minimum of labor and cost. A test set-up was built to provide a factory proving ground. One test motor operated as a motor and the other as a generator, thus providing facilities for simultaneously testing the axle bearings under both motor and dynamic braking duty. No attempt was made to provide lateral or vertical motion of the axle or splashing of the oil in the axle cap.

Several tests on the standard lining then in production were run to provide a basis for future comparison. The production lining was babbitted for the entire length of the bore, including the 10-mil counterbores.

Factory testing of various designs indicated that the correct approach to better oil mileage was not to supply a minimum of oil to the journal, but rather to supply as much as possible and return the excess to the cap. This was accomplished by providing oil return grooves in the lining.



THE NEW DESIGN bearing lining is featured by oil-return grooves.



OIL CONSUMPTION of new and old bearings under identical service conditions.

In order to substantiate factory test results, extensive field testing was carried on for 18 months to find the best oil return type bearing. Oil level versus mileage was measured on 26 locomotives on 11 different railroads. These were selected to represent road passenger, road freight, road switching, and switching service. The oil return bearing which gave the best results in both factory and field tests is illustrated. Results with this

bearing consistently showed that a locomotive in any type of service can run at least three times the mileage between oilings that would be possible with the old style bearings.

Operating Results

The table shows the improvements in mileage obtainable between full and low level of the oil in the axle cap reservoirs. This table shows the average minimum mileage to be expected, assuming the oil meets minimum Association of American Railroads viscosity specifications. In all cases, the pinion end bearing has a higher rate of oil consumption than the commutator end, so only the pinion end mileage is tabulated.

Locomotive Type	New Design Bearing	Old Design Bearing
Road Passenger	12,000	3,500
Road Freight	13,750	4,750
Road Switcher	8,600	2,650

This table shows that the test locomotives (except road passenger engines that run over 12,000 miles per month) can operate between monthly inspections without addition of axle cap oil.

A typical oil consumption curve of a road freight locomotive is shown in the diagram. This comparison was taken between new and old bearings on the same locomotive.

New oil return bearings, bored in 0.020 in. greater diametral clearance to simulate one-half worn condition, were also field tested on the same railroads to establish the fact that this improved oil mileage would be obtained over the full life of the bearing. No appreciable difference in oil consumption between new and worn oil return bearings was found on any of these railroads, in any type of service.

The field test program also included micrometer measurements of the wear of the bearing flange running against the wheel and gear hubs. This was done because, with the very low oil consumption expected in service, the thrust flange would operate essentially as a dry bearing. The data secured indicated no appreciable flange wear on either end bearing, despite the low oil consumption.

The wear areas of the flanges of these test linings on the commutator end invariably showed smooth, highly polished surfaces, without any appearance of scoring of the wheel hubs or colorings from excessive temperature. Oil consumption on the commutator end was so low that the flange could not have been considered lubricated. This was confirmed by its very dry condition when disassembled for inspection. It appears, therefore, that the flange acts as a buffer rather than a continuous bearing.

Significant to Railroads

To illustrate the significance of this development, let us compute the savings if the passenger locomotives of a railroad were to be equipped with the oil return type of bearing. The approximate price of axle cap oil is 38½ cents per gallon, including federal tax. Assume that there are 50 road passenger units operating an average of 20,000 miles per month each. The annual saving in oil for the fleet would be 11,000 gallons at a cost of $4,140. In many cases the saving in oil will prove to be only incidental when compared to the saving in labor.

These benefits are available to any railroad operating locomotives equipped with GE-752 traction motors. In fact, the old type bearing may be altered to the new oil return type in a railroad backshop. The only tools required are a lathe and a milling machine.

Step by step, below-deck maintenance on diesel-electric locomotives has been reduced. Roller bearing journals run from wheel change to wheel change without attention. A new gear lubricant has been developed which gives longer mileage. Sealed armature bearings require no attention between motor overhauls. The oil return axle suspension bearing completes the picture. Now locomotive units operating up to as much as 12,000 miles per month will require no axle cap lubrication between monthly inspections. The time-honored picture of the engineer poking his long spouted oil can into various parts of his locomotive just before he begins his run is gone forever.

HOW THE PRR USES NON-DESTRUCTIVE TESTING

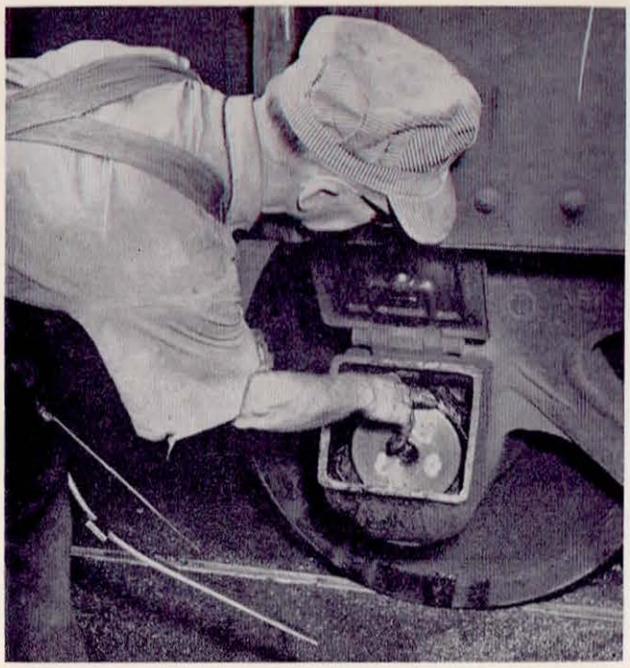
(Continued from page 49)

parts have cracks which are relatively difficult to find. Following satisfactory completion of the practical examination, a letter of qualification is furnished the shop concerned. The operator's subsequent work in the shop is checked by unannounced visits of test-department inspectors to the shops, by comparison of his records with those of other operators doing the same work in other shops and by check examination of cracked parts received by the engineer of tests from his shop.

The success of the various test methods in shops is largely dependent upon the cleanliness of the parts presented to the operator for test and it is Pennsylvania practice to remove carefully all scale, dirt, grease and paint prior to examination.

The engineer of tests has set up an adequate record system, the elements of which have been made as simple as possible. This system permits all pertinent data relating to the results of magnetic-particle and associated tests to be accumulated and reported to him. Thus he evaluates all data collected from the system, and in addition, exercises technical control of this work in the shops.

Based on analysis of these data, the engineer of tests prepares quarterly reports to the general superintendents of motive power and others concerned. These reports give a summary of test results which aid the respective officers in improvement of maintenance practices, quality of materials and design.



WHEN THE TRAIN comes into the yard the inspector tests the journal temperature.

PROPER ATTENTION to the journal box packing is most important factor in preventing hot boxes.

Every Hot Box Investigated

The Norfolk & Western takes nothing for granted in its efforts to find out why each hot box occurs and how to prevent another one

There are many factors that contribute to keeping down the number of hot boxes that occur in railroad operation but the Norfolk & Western has found that one of the most important of all is to make sure that no one takes the attitude that any hot box is "just another hot box."

The prompt and thorough investigation of each one that occurs is comparable in exhaustiveness to the investigation of a derailment practiced 25 years ago. Everyone—from the highest motive power officer down to the inspector who last felt the journal—is a part of the investigation and the file is not closed until every contributing factor is studied and a conclusion reached.

No hot box on the N&W can be brushed off today by some such simple report as "Due to waste grab." Such thoroughness in investigation, plus improved materials, facilities and practices, have resulted in a freight service record on the N&W averaging well over a million and a quarter miles for every hot box that occurs.

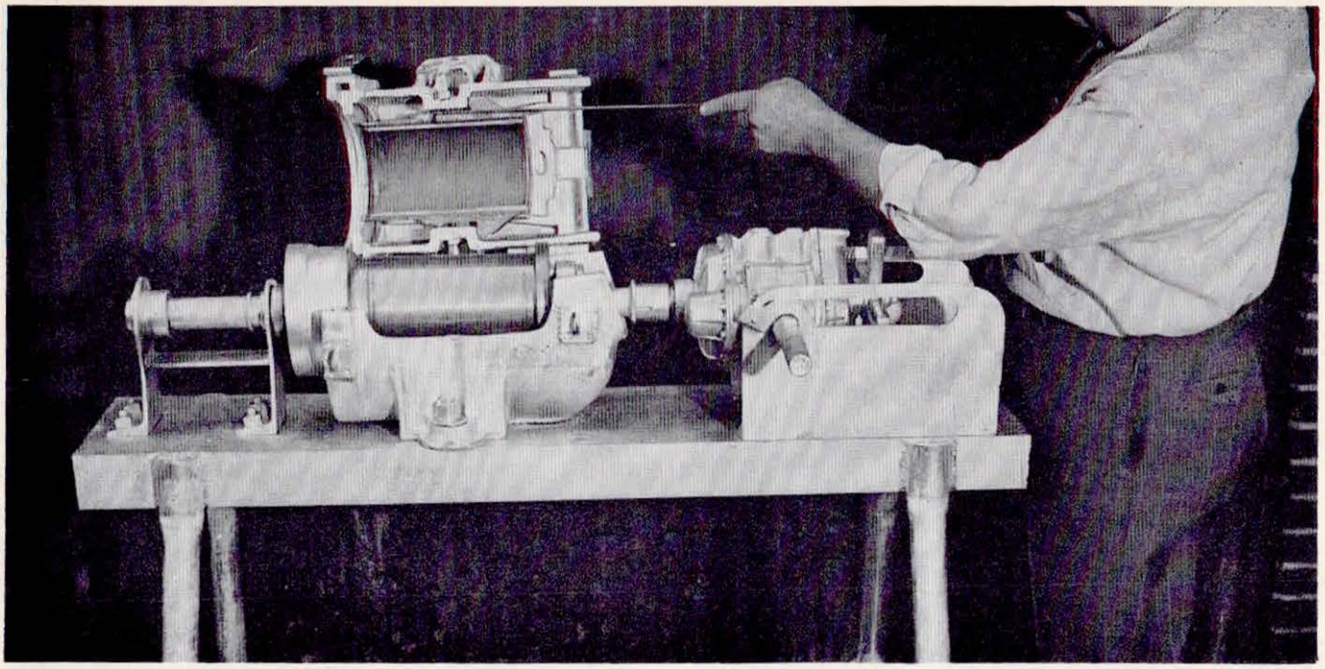
Not only does each master mechanic always know how his division compares with other divisions, but a healthy rivalry exists all the way down to the inspection groups. Any inspector who has gone for a year or more, without having a hot box charged to him, has a right to be proud, and he usually is.

When a hot box develops, the dispatcher notifies the division master mechanic by telephone, who in turn telephones the information to the office of the general superintendent motive power. Each morning, a bulletin is furnished each member of the general superintendent motive power staff who has a direct interest in hot boxes. This bulletin gives the record for the preceding day, the accumulated number by divisions, for the present and preceding month, and also the accumulated number of home owned and foreign cars for the month.

The master mechanic of the division on which the hot box develops furnishes a complete detailed report of pertinent information concerning the condition of the hot box and his conclusion as to its cause. The master mechanic of the division on which the car was last inspected includes in his report the time of arrival of train in yard, time inspection was started and completed, attention given the box, and the name of the inspector servicing the box and the supervisor in charge. If the supervisor of the group inspecting the train was absent at the time, an explanation is furnished.

There has been a considerable difference of opinion on various railroads as to whether it is better to make inspection of boxes on arrival, or just prior to departure. Except in special cases, it is not practical to make two inspections. On the basis that the primary object of the inspection is to locate boxes in which conditions are such that they may develop into hot boxes, the N&W makes the inspection on the arrival of trains in the transportation yards. At that time, any unusual condition is readily evident from an increase in the running temperature of the journal.

Abnormal conditions are more evident through a journal running above normal temperature than they



INSTRUCTION of employees is made easier by the use of full-size working models of journal boxes.

are by visual inspection of the box after the journal has cooled down. On numerous occasions, investigations of hot boxes have developed that the last previous inspection was not made until several hours after the arrival of the train.

Evidence has been found in many cases that the development of the hot box occurred over a rather long period of time. The box had been "sick" at perhaps several previous inspection points, but in each case the temperature had not been taken until the journal had cooled down. If the temperature had been taken immediately on arrival at a terminal, the "sick box" could have been corrected and would not have caused a hot box. For this reason, considerable emphasis is placed on making the inspection as quickly as possible on arrival, comparing the temperature of all journals on the side of each car.

At one point where the repair tracks are adjacent to a hump classification yard, a second inspection is made of several time freight trains. These consist primarily of foreign cars, the majority of which do not have waste retainers. This inspection just prior to departure, is for the purpose of setting up packing disturbed in making up the train.

In making the inbound inspection, the procedure followed is that of feeling the journal with the bare hand, "hooking" the journal and setting up the packing in all boxes not equipped with retainers. If necessary, the packing in boxes equipped with retainers is set up after removing the retainer. The retainer is inspected while it is out of the box and if it is not in good condition, it is renewed. Free oil is added if required.

When the journal is found running above normal temperature, it is either given the necessary attention at the point of inspection in the yard, or "shopped out" of the train.

Inspectors are trained to recognize and correct conditions that may cause a hot box. Each is furnished with detailed instructions, in booklet form, describing each operation to be followed to prevent hot boxes on line of road. Newly assigned workmen first study these instructions and work with experienced men before being assigned to work alone.

Separate instructions, also in booklet form, are furnished each supervisor, outlining the general supervision of repacking boxes, inspection and investigation of hot boxes and defining his responsibilities in connection therewith.

In addition to furnishing printed detailed instructions, for both workmen and supervisors, there is a frequent follow-up by local mechanical officers of the work being performed, as well as by representatives from the office of general superintendent motive power.

Training Techniques

Each major point is provided with special journal boxes for the instruction and training in proper procedures. Not only new men, but also those with experience, are required at stated intervals to demonstrate packing of boxes, application of retainers, and hooking for waste grabs and spread lining. One design of demonstration box has a journal that may be rotated with the bearing and wedge and packing in place. The box is cut in half and hinged so that the upper portion may be raised in demonstrating how waste grabs develop and the proper method of hooking along the edge of the bearing.

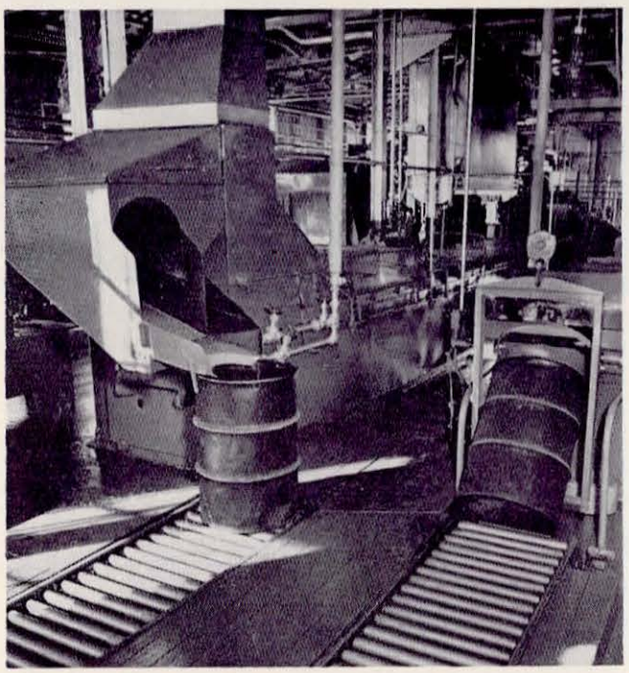
The N&W reclamation plant is at Portsmouth, Ohio. All reclamation and preparation of packing for the system is handled there. It has been found that one of the major factors in reducing hot boxes is a good quality of packing. The reclamation of the secondhand waste and oil going into the packing is carefully controlled. The

means employed for maintaining the quality of the waste and oil, both new and reclaimed, have been discussed in a previous article (*Railway Age*, June 15, page 103).

A typical 12-month production for the plant is as follows:

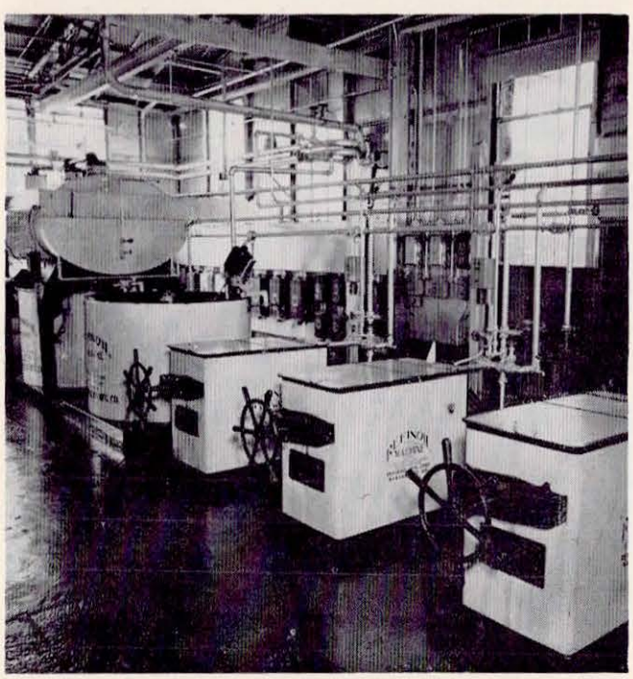
Reclaimed waste, lb.	625,432	
New waste, lb.	562,801	
Reclaimed oil, lb.	2,381,460	(315,008 gal.)
New oil, lb.	2,965,591	(392,274 gal.)
Total, lb.	6,535,284	

While the N&W has been able to make an improvement in its hot box record, its management is not at all satisfied and is continuing to search for better materials and methods. At the present time, efforts are being made to find some means better than the conventional waste pack for delivering the oil to the journal. Waste packs of various materials in different forms are first run on a full size journal-testing machine in the laboratory and the ones that show promise are then tested on the road.

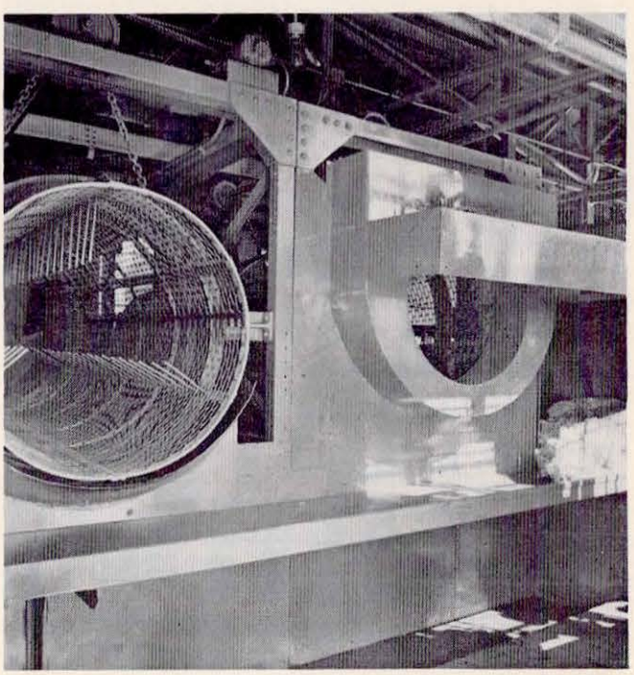


IN THE WASTE reclaiming plant the old waste is cleaned by passing it through a hot-oil bath.

PART OF the equipment used for the reclamation of waste for journal boxes.



THE OIL that has been used in the waste cleaning process is reclaimed in this section of the plant.



OLD WASTE is cleaned in drum, left, mixed with new waste, put through drum, right, and then into clean oil.

AT THE SIDING, the power switch machine lines the switch for the train to enter . . .

. . . AND THE SIGNAL is cleared to direct the train to enter the siding.

80% of Meets Without Stopping

Signaled sidings, nearly two miles long, with high-speed turnouts permitting trains to hold 40 m.p.h. speed, are aids in making non-stop meets

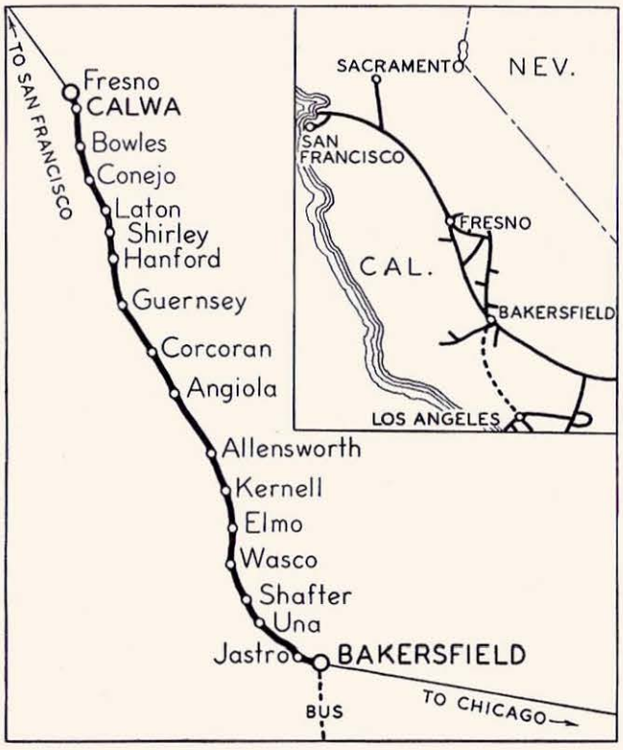
As a means of increasing track capacity and saving train time, the Santa Fe has installed centralized traffic control on 107 miles of heavy traffic single-track main line between Bakersfield, Cal., and Calwa, which is at the east end of the yard at Fresno, Cal. The power switches and signals, for authorizing train movements, are controlled by a C.T.C. machine in the dispatcher's office at Fresno.

Train movements formerly were authorized by timetable and train orders, automatic block signaling being in service as protection. The siding switches were equipped with spring mechanism, so that trains could depart without stopping. Operators were on duty three tricks at Bakersfield, Calwa, and several intermediate offices. That is, all the accepted methods of moving trains, other than C.T.C., were being employed.

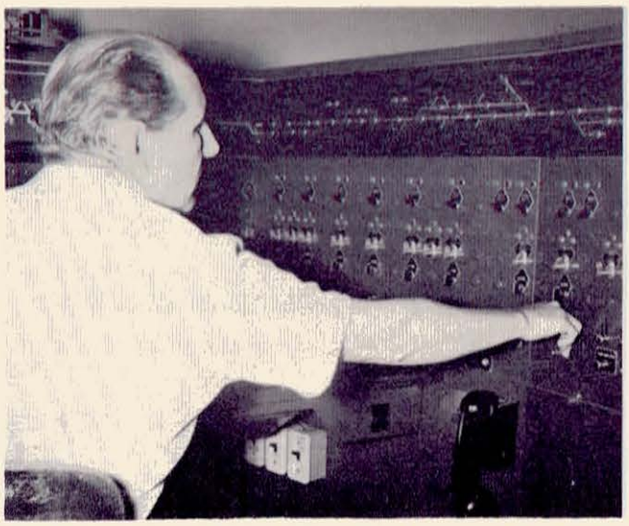
A special feature of this installation is the use of sidings nearly two miles long, which permit more meets to be made with neither train being required to stop. A further means of saving train time is the use of No. 20 turnouts with signal aspects to direct trains to enter and leave these long sidings at the speeds for which the turnouts were designed. These train moves are aided by special automatic signals on the sidings, a pair of such signals being located approximately at the middle of each siding. Another useful purpose of these automatic signals on long sidings is to permit two trains to use the same siding with safety and without delay.

The new C.T.C. section between Bakersfield and Calwa (Fresno) is an important part of the Santa Fe route between Chicago and San Francisco, Fresno being 209 miles from San Francisco. This also is part of the Santa Fe route between Los Angeles and San Francisco. This Bakersfield-Calwa section of the railroad is in the broad, level San Joaquin valley, the elevation above sea level being 404 ft. at Bakersfield and 296 ft. at Fresno. The grade is level for long sections. The maximum grade of an appreciable length is 0.2 per cent, and the curvature is light. Between Allensworth and Guernsey there is a tangent 29 miles long, and another 12 miles long is between Santhu and Jastro. In the 107 miles there are only 17 curves; three are 30-min.; six are 1-deg.; three are 2-deg.; four are 3-deg. and one is 4-deg. Trains can be accelerated quickly, and can maintain maximum permissible speeds, without variation, for long distances.

Eight passenger trains are operated daily on this Bakersfield-Calwa section. Two of these passenger trains each way daily are in through service between Chicago and San Francisco. The other two trains each way daily are in the lightweight streamline "Golden Gate" Service

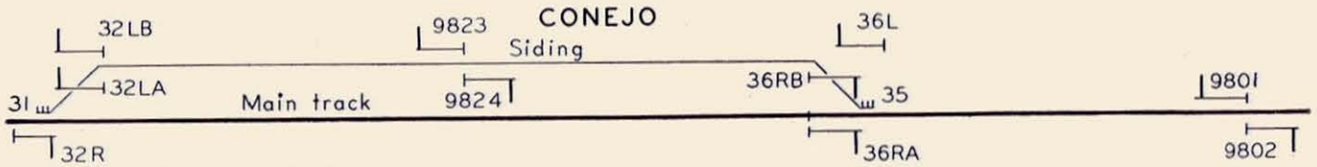


THE CENTRALIZED traffic control territory extends from Calwa to Bakersfield.

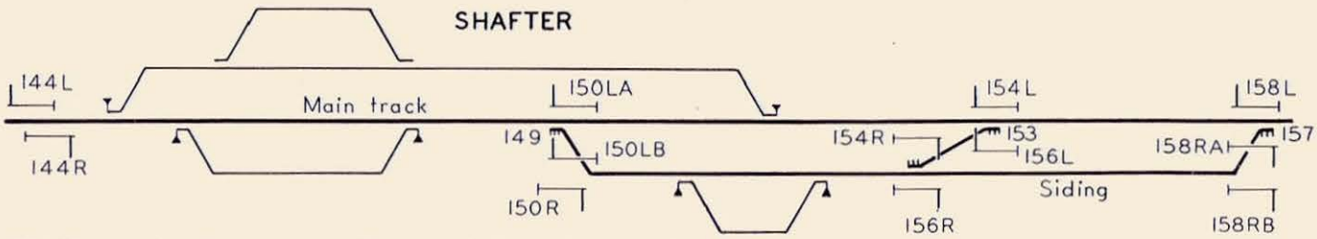


THE DISPATCHER at Fresno has charge of the C.T.C. control machine.

THE TRAIN-STOP SYSTEM includes an inductor placed 80 ft. in approach to each signal.



TRACK and signal plan of siding at Conejo.



TRACK and signal plan of the sidings and hold-out signals at Shafter.

between San Francisco and Los Angeles, with bus connection at Bakersfield.

About four to six through freight trains are operated each way daily, plus a local freight each way daily except Sunday. Large quantities of fruits and vegetables are grown in the San Joaquin valley. During a period of six to eight weeks, starting early in May, the Santa Fe moves about 12,000 cars of early potatoes out of Kern county, in the valley. Most of these cars are loaded at Shafter and Wasco. Fruits, such as grapes and oranges, are shipped in carload lots during the seasons. Many carloads of raisins are shipped out of Fresno to Chicago and the east, because Fresno is a major packing center of California raisins.

Previously, between Bakersfield and Calwa there was a single siding at each of 18 locations, and at Corcoran there was a lap siding, and at Hanford two sidings, one east of a crossing with the SP and one west of this crossing. All these 22 sidings were used regularly for meeting and passing trains. The new C.T.C. system employs 16 sidings. This reduction was accomplished by two means. The sidings at Oleander, Bean, Santhu and Rosedale were removed. Four other sidings were shortened to serve as house tracks, these being at Laton, Blanco, Stoil, and Monmouth.

Previously, most of the single sidings were about a mile long, with a capacity of 80 to 96 cars plus a locomotive and caboose. As part of the improvement program, many of the sidings were lengthened. Single sidings which were extended to about 2 miles (173 cars) are at Una, Elmo, Kernel, Allensworth, Angiola, Guernsey, Shirley, Conejo, Bowles, and Hanford (east siding).

The siding at Jastro was extended east to Landco, making a total new length of 14,300 ft., and a crossover was installed at the middle of the siding to connect into the main track. The capacity of this siding is 126 cars east of the crossover and 123 cars west. At Shafter, the extended siding is now 12,500 ft. long, with a crossover at the middle connecting to the main track. The capacity of this long siding is 101 cars on each side of the crossover. In the lap at Corcoran, the east siding was not lengthened, but the west one was lengthened to 189-car capacity. At Hanford, the siding east of the SP crossing was lengthened to 172-car capacity but the one west of the crossing remains 1 mile long, for 96 cars.

In the new arrangement there are 12 sidings about 2

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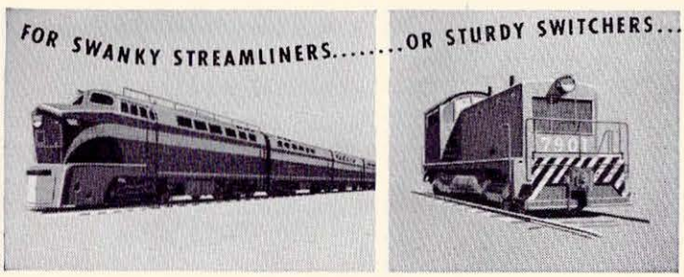

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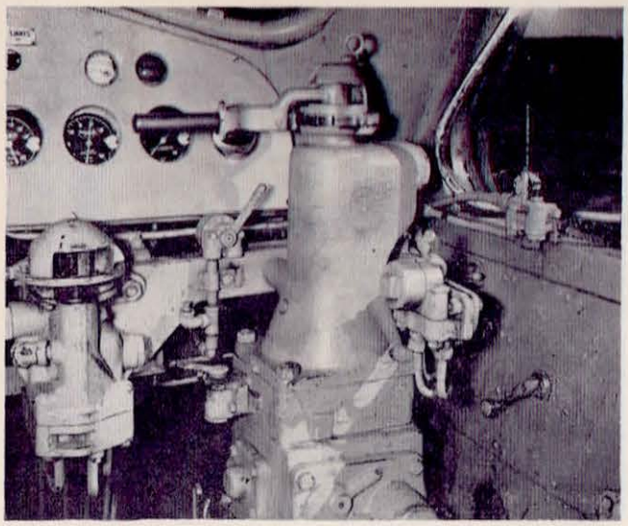


IF THE ENGINEMAN disregards a signal aspect, the train-stop equipment on the locomotive will apply the brakes.

miles long, two sidings (with crossovers) nearly 2.5 miles long, and two sidings (one at Corcoran, and one at Hanford) about 1 mile long. New No. 20 turnouts were installed at both ends of all these 16 sidings. Switch machines were installed at these 32 switches and 4 crossover switches, as well as at one switch and one crossover in the yard leads at Bakersfield. These switch machines, and the signals at these switches which authorize train movements, are controlled by a C.T.C. machine in the dispatcher's office at Fresno. At Hanford the previous mechanical interlocking at the crossing with an SP branch line was removed, being replaced by a C.T.C.-controlled plant. The two Santa Fe passing track switches near the tower, formerly in the mechanical plant, were equipped with electric switch machines, included in the C.T.C. control.

Numerous Meets

Of the eight passenger trains daily, the schedules call for two of the eastbound trains to meet three of the westbound trains. These meets are scheduled at Allensworth, Shirley, and Conejo. One of these westbound trains, No. 63, the "Golden Gate" daylight train, is scheduled to make the 107-mile run from Bakersfield to Calwa in 1 hr. 30 min., averaging 71.7 m.p.h. This permits no time loss for the meet at Allensworth with the opposing eastward "California Limited" train No. 4. Operation of the passenger trains is further complicated by the fact that five of these trains are bunched to traverse this 107-mile section between 10:45 a.m. and 5:40 p.m. In addition to these passenger trains, the freight trains must be kept moving. The C.T.C. has helped to improve on-time performance of the passenger trains, and has reduced delays to freight trains, not only while en route but also by allowing them to depart from the yards promptly when ready.

The principal objective of the extra long sidings is to increase the number of instances in which two opposing trains can meet with neither train being required to stop. The track of these long sidings is built and maintained for train speeds of 40 m.p.h. In order to increase the speed at which trains can enter or leave sidings, new No. 20 turnouts were installed at the ends of all the sidings and crossovers that are now equipped with power switches in the C.T.C. system.

To provide clearance for signal masts between the main track and sidings, the Santa Fe continued the tangent through the frog to a point 403 ft. from the toe of the frog to a point of spiral of a 1 deg. 30 min. curve with spiral lengths of 60 ft. This alinement beyond the 1 deg. 30 min. curve consists of a tangent approximately 400 ft. to a 1 deg. curve which brings the track centers of the passing track and main line back to 14 ft., this construction incidentally reducing the swaying of cars when going through these turnouts, as the long tangent allows sufficient time for the car springs to react and come to rest. While this resulted in 31-ft. track centers at the end of the passing tracks, little additional grading was necessary as the ground is practically level through this territory and the right-of-way was adequate.

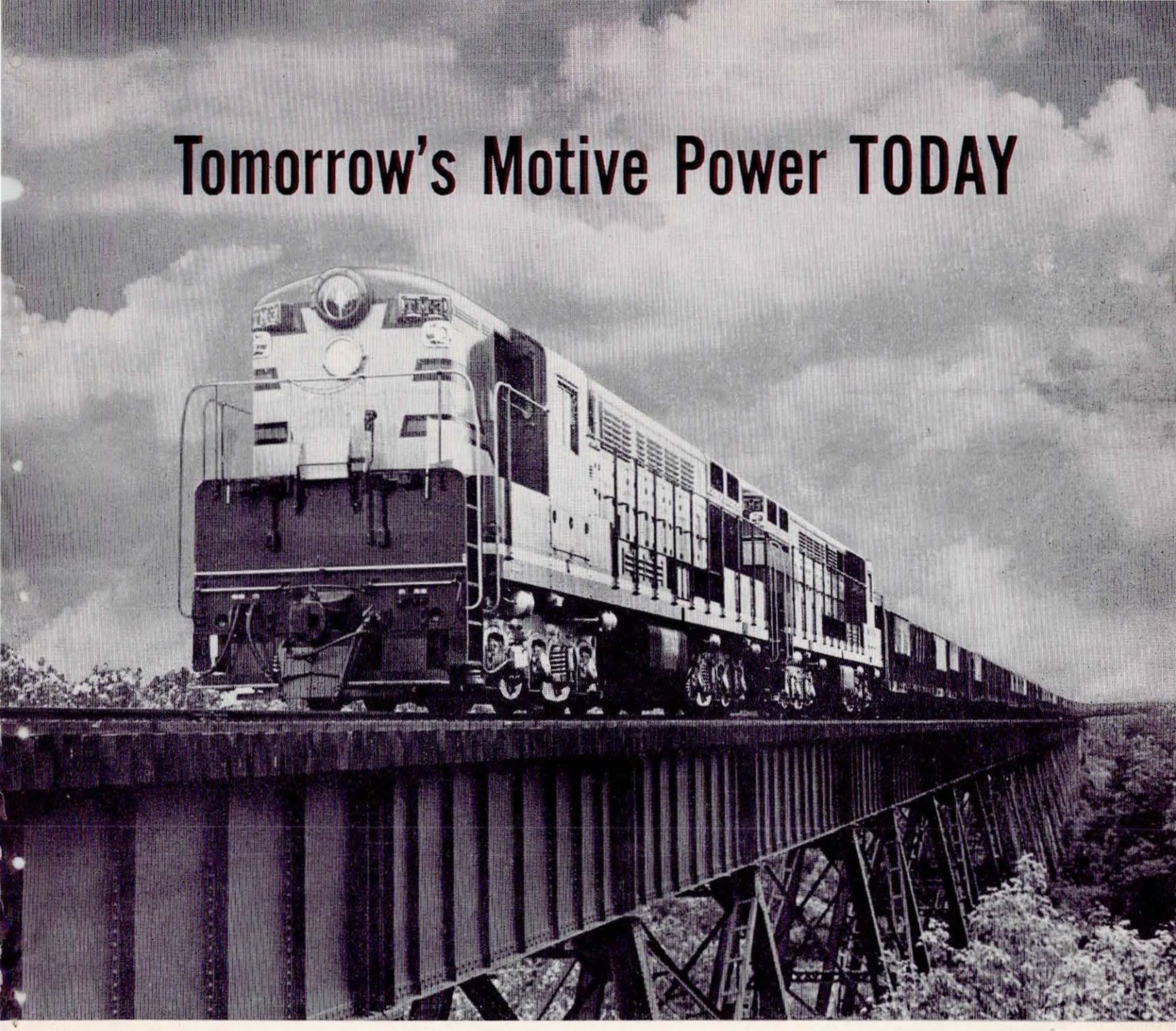
This arrangement permits a train to enter a siding at 40 m.p.h., and each of the 2-mile sidings is long enough for an engineman to pull his entire train into the siding at 40 m.p.h. and still have plenty of track length remaining in which to stop. The sidings are equipped with track circuits which enter into the control of signals, the same as on main tracks, and signal aspects are provided to direct trains to utilize the track facilities efficiently, i.e., to move into and out of the sidings at the maximum speeds consistent with safety. This noteworthy objective is attained by a special arrangement of signals, and a range of very simple aspects.

At Conejo, for example (see diagram), when the dispatcher sends out a control for a westbound train to enter the siding, switch 35 is reversed, and westward signal 36L is controlled to display the Diverging-Clear aspect, red-over-green; and the distant signal 9801 displays the Advance aspect, yellow-over-yellow. Accordingly, the engineman brings his train up to and through the turnout at about 40 m.p.h. At the middle of the siding there is an automatic block signal for each direction, signal 9823 being the westward signal at the Conejo siding.

As the westward train pulls into Conejo siding, signal 9823 displays the Approach aspect, yellow, leading up to the Stop aspect, red, on the leave-siding Signal 32LB. Therefore, with safety and with conformance to standard practices, the train enters the siding at 40 m.p.h., not only saving time but aiding in making a non-stop meet.

In the meantime, the dispatcher may bring an eastbound train up to Conejo for a close meet. He does this by sending out controls which cause eastward signal 32R to display the Approach aspect, yellow, and the distant signal 9842 to display the Advance aspect, yellow-over-yellow. Accordingly, the eastbound train is brought up to signal 32R at medium speed, and continues toward signal 36RA, prepared to stop short of that signal. In the meantime, as soon as the rear of the westbound train (entering the siding) clears the east switch No. 35, the dispatcher places this switch normal, and clears the eastward main-line signal 36RA, for the eastward train on the main track, so that this train may go on through at accelerated speed. And as soon as the rear of this eastbound train on the main line clears the

Tomorrow's Motive Power TODAY



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west switch, No. 31, the dispatcher reverses this switch and clears the westbound leave-siding signal, 32LB, directing the westbound train on this siding to depart. Thus the three factors, long sidings, No. 20 turnouts, and signaling, are coordinated, so that about 80 per cent of the meets between opposing trains are being made with neither train stopping.

Two Trains on a Siding

Another important advantage of a long siding, such as the one at Conejo, is that when necessary it can be used to hold two trains, while another passes. For example, a leading westbound train enters the siding, as previously explained, and stops short of the westbound leave-siding signal 32LB, which is indicating Stop. With the rear of this train west of intermediate siding signal 9823, this signal displays the red aspect. Under these circumstances, if the dispatcher wants to run another westbound train into the siding behind the first one, he sends out a control that places switch 35 in the reversed position, and signal 36L is controlled to display the Diverging-Approach aspect, red-over-flashing yellow, and the distant signal 9801 displays the Advance aspect, yellow-over-yellow. This second train approaches at medium speed, and enters the siding prepared to stop short of signal 9823. Thus two trains of the same direction can be diverted to enter a siding with complete safety.

At Shafter (see diagram) there is a crossover from the siding to the main track near the middle of the siding which has a capacity of 101 cars each way from the crossover. With this arrangement, an eastbound train can be directed to enter the west end of the siding and pull on down to the east end, to stop short of leave-siding signal 158RB, with its rear east of signal 156L at the crossover. Then a westbound train can be directed to enter the siding at the crossover and stop short of leave-siding signal 150LB. Then, after another train passes, the leave siding signals can be cleared for the two trains on the sidings to depart at the same time. The lap siding at Corcoran can be used in various ways to meet and pass trains, with minimum delays.

Operation of Switches

Dual-control electric switch machines are used on the power-operated switches. On the No. 20 turnouts the switch points are 30-ft. long, and although they are reinforced, they are flexible, and therefore, to be sure that the points go over and fit against the stock rails, a second operating connection is attached to the No. 5 switch rod, and is pipe connected to the operating connection on the No. 1 rod.

Insulated gage plates, 1 in. thick and 8 in. wide, are used on four ties, including the No. 0 tie. Adjustable rail braces are used on these ties. The plates, on two ties, extend and are bolted to the switch machine.

At the main track switches connecting to house tracks and spurs, the old hand-thrown switch stands were replaced by U.S.&S. T-21 hand operated switch stand, equipped with Style SL-21A electric lock.

In the season between May 15 and July 1, the Santa Fe hauls about 12,000 cars of early potatoes out of this territory, the two principal loading points being Shafter and Wasco. At Shafter the vegetable loading warehouses are served by several spurs and house tracks, most of which are west of the C.T.C. siding. In this area, a special switching zone was established by installing a pair of C.T.C. controlled holding signals on the main track about 1 mile west of Shafter, and the C.T.C. control signals at the east end are used as holding signals.

When no trains are due for a period of 45 min., for example, the dispatcher sets the signals at Stop, against trains approaching Shafter from both directions. Then he releases the electric locks on the hand-throw switches in Shafter. The switch engine crews then can make moves back and forth under full protection, and thereby expedite the switching. Near the end of the assigned period, the switch crews must clear the main track, and close and lock all the spur track switches; then the dispatcher can clear the hold-out signal for an approaching train. Hold-out signals are used in the same way at Wasco. Thus these hold-out signals as well as all the other advantages of the C.T.C., have aided materially in eliminating serious delay and congestion formerly experienced in the periods of peak loading.

Automatic Train Stop, Too

An automatic train stop system of the intermittent inductive type forms a part of the signaling system on this territory. A wayside indicator is located on the ends of long ties at the right of the track about 80 ft. in approach to each main line signal. The 80 ft. distance is varied plus or minus if necessary to get the inductor at least 6 ft. from a rail joint, in order to minimize vibration damage to the inductor.

The train-stop equipment on a diesel includes a receiver mounted on the rear journal box on the front truck. The center line of the receiver is 25¾ in. from the gage of rail, so that it rides directly over the center line of the wayside inductors, with a vertical clearance of at least 1 7/16 in.

When a signal is displaying the Clear aspect (high green), the corresponding wayside inductor is controlled so that it makes no change in the locomotive apparatus as the receiver on the locomotive passes over that inductor. However, if the signal is displaying any aspect other than Clear (high green), the train-stop equipment on the locomotive will function to apply the air brakes automatically, if the engineman does not "acknowledge" as he approaches and passes over the wayside inductor.

When the brakes are thus applied the train is brought to a stop. After such a penalty brake application is received, the engineman can operate the lever of his reset device, which introduces a delay period, at the termination of which the brakes are released. The time delay is of sufficient duration to insure that the train, in the meantime, has stopped.

The signaling on this Bakersfield-Calwa section was planned and installed by Santa Fe forces under the general jurisdiction of G. K. Thomas, system signal engineer, and under the direct charge of E. R. Fraschiseur, signal engineer, Coast Lines. The major items of signaling equipment were furnished by the Union Switch & Signal Division of Westinghouse Air Brake Company.

TAKING THE HEAT OFF....

Bower-Franklin journal boxes, equipped with dependable Bower straight roller bearings, are ready to help you carry more freight — at greater speeds — with no danger of hot boxes.

These high-quality bearings have already *proved* themselves in numerous other types of heavy-duty equipment — steel rolling mills, heavy trucks, earthmovers, cranes, shovels, and railroad generator-drive units, to mention but a few.

Sales and application engineering for the Bower-Franklin journal boxes are being handled by the Franklin Balmar Corporation. Additional information will be furnished on request.

FRANKLIN BALMAR CORPORATION

FRANKLIN BALMAR CORPORATION
WOODBERRY, BALTIMORE 11, MARYLAND
CHICAGO OFFICE: 5001 North Wolcott Ave., Chicago 40

Financial

(*Continued from page 15*)
would be used to pay off existing notes, and to provide additional working capital. Meanwhile, the brokerage firm of Halsey, Stuart & Co. has advised the I.C.C. that it opposes the Great Western's request for competitive bidding relief. The I.C.C. announced on December 21 that it will hold hearings in the case.

Investment Publications

[The surveys listed herein are for the most part prepared by financial houses for the information of their customers. Knowing that many such surveys contain valuable information, *Railway Age* lists them as a service to its readers, but assumes no responsibility for facts or opinions which they may contain bearing upon the attractiveness of specific securities.]

Glore, Forgan & Co., 40 Wall st., New York 5.

Atlantic Coast Line Railroad Company: A Railroad—and System—with Growth Aspects.

Smith, Barney & Co., 14 Wall st., New York 5.

Railroad Stocks; Tax Loss Exchanges. Railroad Bulletin No. 147, December 3.

Vilas & Hickey, 49 Wall st., New York 5.

Great Northern's Iron Ore Business. December 8.

Securities

Authorization

UPPER MERION & PLYMOUTH.—To issue a $300,000 promissory note to the Alan Wood Steel Company, to evidence the unpaid balance of the purchase price of 302 used coal cars. Total cost of the cars is $348,206. The note will bear interest at 3½ per cent, and will be payable in 10 semiannual installments of $30,000 each. It will be secured by a chattel mortgage on the cars.

Applications

MISSOURI PACIFIC.—To assume liability for $3,000,000 of series WW equipment trust certificates, to finance in part 24 diesel units costing an estimated $3,833,016.

	Description And Builder	Estimated Unit Cost
6	1,600-hp. freight locomotive "A" units (American Locomotive-General Electric Companies)	$175,017
6	1,600-hp. freight locomotive "A" units (Alco-G.E.)	162,997
12	1,600-hp. freight locomotive "B" units (Alco-G.E.)	149,123

The certificates, to be dated January 15, would mature in 15 annual installments of $200,000 each, beginning January 15, 1955. They would be sold by competitive bidding, with the interest rate to be set by such bids.

VIRGINIAN.—To assume liability for $4,200,000 of series D equipment trust certificates, to finance in part 25 diesel units costing an estimated $5,305,931:

	Description and Builder	Estimated Unit Cost
19	2,400-hp. road-switchers (Fairbanks, Morse & Co.)	$280,886
5	1,600-hp. road-switchers (Fairbanks, Morse)	151,712
1	1,600-hp. road-switcher (Fairbanks, Morse)	160,537

According to the application filed at the I.C.C., the Virginian will use the 25 diesels to replace 55 steam locomotives which the road presently uses on its line at and west of Elmore, W. Va.

The certificates, to be dated February 1, 1954, would mature in 15 annual installments of $280,000 each, beginning February 1, 1955. They would be sold on the basis of competitive bidding, with interest rate to be set by such bids.

WESTERN MARYLAND.—To assume liability for $4,830,000 of series R equipment trust certificates, to finance in part seven diesel units and 750 freight cars costing an estimated $6,045,885:

	Description and Builder	Estimated Unit Cost
5	1,500-hp. road units (Electro-Motive Division, General Motors Corporation)	$159,253
2	1,600-hp. road switchers (American Locomotive Company)	164,605
450	55-ton hopper cars (Bethlehem Steel Company)	5,723
50	55-ton hopper cars (Bethlehem)	6,621
250	70-ton gondola cars (Bethlehem)	8,056

The certificates, dated December 15, would mature in 15 annual installments of $322,000 each, beginning December 15, 1954. Subject to I.C.C. approval, they have been awarded to Halsey, Stuart & Co., which submitted a bid of 99.4433 with interest at 3 per cent.

Security Price Averages

	Dec. 21	Prev. Week	Last Year
Average price of 20 representative railway stocks	58.49	58.11	70.38
Average price of 20 representative railway bonds	90.96	90.76	95.60

Dividends Declared

BELT R.R. & STOCKYARDS.—common, 50¢, quarterly; 6% preferred, 75¢, quarterly, both payable January 1 to holders of record December 21.

CANADIAN PACIFIC.—ordinary, 75¢, payable February 26 in Canadian funds to holders of record December 30; 4% non-cum. preference, 2%, payable February 1 to holders of record December 31.

CAROLINA, CLINCHFIELD & OHIO.—guaranteed, $1.25, quarterly, payable January 20 to holders of record January 8.

CINCINNATI INTER-TERMINAL.—4% preferred, $2, semiannual, payable February 1 to holders of record January 20.

EAST PENNSYLVANIA.—$1.50, semiannual, payable January 19 to holders of record December 31.

LAKE SUPERIOR & ISHPEMING.—35¢, quarterly, payable January 15 to holders of record December 31.

NORTHERN CENTRAL.—$2, semiannual, payable January 15 to holders of record December 31.

PIEDMONT & NORTHERN.—$1, quarterly, and $2, extra, both payable December 21 to holders of record December 10.

TEXAS & PACIFIC.—common, $1.25, quarterly, and $3, extra; 5% non-cumulative preferred, $1.25, quarterly, all payable December 31 to holders of record December 28.

WHEELING & LAKE ERIE.—common, $1.43¾, quarterly; 4% prior lien, $1, quarterly, both payable February 1 to holders of record January 15.

Railway Officers

CANADIAN NATIONAL.—**P. J. Welsh,** secretary to vice-president of traffic, at Montreal, has been appointed district freight agent at Toronto. **E. H. Cameron** has been named division freight agent at Stratford, Ont., succeeding **Chester Hill,** who has been transferred to Hamilton.

CANADIAN PACIFIC. — **T. Hooks,** assistant freight traffic manager at Vancouver, has been appointed assistant general freight traffic manager at Montreal, succeeding **F. K. Hollyman,** who has been appointed freight traffic manager, Eastern region, at Toronto. Mr. Hollyman succeeds **J. Fullerton,** who has been transferred to the Prairie and Pacific regions and the United States Pacific Coast agencies, at Winnipeg. Mr. Fullerton replaces **W. M. Jamieson,** who has been appointed freight traffic manager—system, rates and divisions, at Montreal.

LACKAWANNA. — **William G. White,** general manager, and **Rowland L. Davis, Jr.,** general counsel, have been appointed vice-president of operations and vice-president and general counsel, respectively, effective January 1.

MAINE CENTRAL.—As reported in *Railway Age* October 12, **Charles D. Prentice** has been appointed engineer of track and **James O. Born** has been named engineer of structures, both at Portland, Me.

Charles D. Prentice

James O. Born

MILWAUKEE.—**J. D. Shea,** division superintendent at Miles City, Mont., has been transferred to Terre Haute, Ind., succeeding **W. E. Swingle,** who in turn replaces Mr. Shea, **J. J. Nentl,** assistant division superintendent at Aberdeen, S. D., has been transferred to Miles City, succeeding **W. A. Horn,** who died December 5. **N. H. McKegney,** trainmaster at Minneapolis, has been named

trainmaster at Aberdeen, while **W. O. Harnish** has been transferred from Bensenville, Ill., to succeed him. Mr. Harnish has been replaced by **F. G. Benner,** special representative to general manager at Chicago.

NEW YORK CENTRAL. — Frederick G. Day, credit officer, has been appointed an assistant treasurer at New York, succeeding **Henry A. Dahmer,** who will retire December 31, after 42 years' service.

PENNSYLVANIA. — R. L. Agnew, passenger trainmaster, has been appointed acting superintendent passenger transportation, succeeding **Boyd Wilson,** on leave of absence.

Named as division engineer, Cincinnati division, is **Norman Olsen,** assistant division engineer at Pittsburgh.

ROCK ISLAND.—L. B. Pritchett, acting vice-president in charge of industrial and agricultural development in the executive department at Chicago, has been appointed assistant vice-president—freight traffic at that point. **William E. Bolton,** vice-president, will retire December 31. Mr. Pritchett entered railroad service in 1920 as stenographer and clerk in the freight traffic office of the Chicago

L. B. Pritchett

& Alton at Dallas, Tex., and, after a brief period with the Union Pacific, joined the Missouri Pacific as traveling freight agent. He went to the Rock Island in 1936 as secretary to chief executive officer; and in 1941 and 1948, respectively, became assistant to chief executive officer and assistant to president. He was named acting vice-president last August.

OBITUARY

Harry R. Mardorf, retired treasurer of the **Monon,** died December 14 in Du Page Memorial Hospital, Elmhurst, Ill.

Jonathan P. Reeves, retired secretary and treasurer of the **Chicago & Eastern Illinois,** died December 12 at Chicago.

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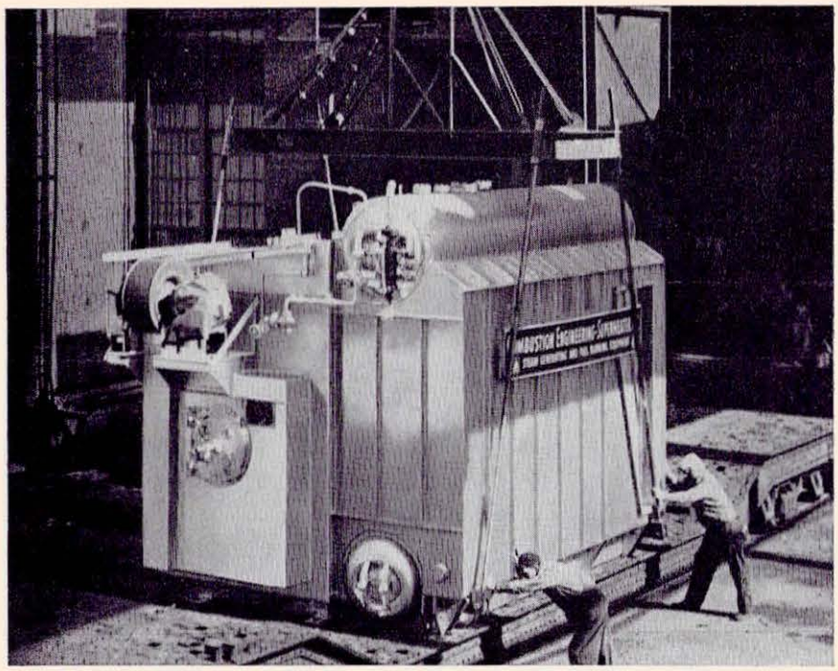

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Current Publications

BOOK

IRON ROAD TO EMPIRE: THE HISTORY OF THE ROCK ISLAND LINES, by William Edward Hayes. 306 pages, illustrations. Simmons-Boardman Publishing Corporation, 30 Church st., New York 7. $5.

A factual history of the various railroads comprising the present Rock Island lines, paying tribute to the sturdy pioneers whose ability and foresight laid the foundation of the iron road to empire a century ago.

Mr. Hayes has divided his material into five periods—the dream and the drama, 1845-1869; the links and the forge, 1869-1883; beyond the Missouri, 1883-1901; pattern for disaster, 1901-1933; and rebirth and regeneration, 1933-1952. There is much local color in the history, recounting the heartaches, difficulties of financing, lawsuits and other opposition to the building of a railroad in virgin country. Overcoming these obstacles and the ultimate acquisition of other lines then projected or building created a railroad that early in its career became both prosperous and prominent. This prominence attracted the attention of Jesse James and his gang of train robbers who first practiced their depredations upon the Rock Island. A number of other—and more satisfactory—"firsts" can be credited to the Rock Island, including the bridging of the Mississippi after a legal battle with vested steamboat interests—a battle in which the road was ably represented by an aspiring Illinois lawyer named Abraham Lincoln.

PERIODICAL ARTICLE

PLIGHT OF THE RAILROADS. U. S. News & World Report, December 18, 1953, pp. 48-50, 52, 105-108 and 110. United States News, 24th & N sts., N. W., Washington 7. D. C. (Circulation department, 435 Parker ave., Dayton 1, Ohio). Single copies, 20 cents.

A "question-and-answer" interview with William White, president of the New York Central, in which Mr. White states his views on various problems currently confronting the railroad industry—among them, subsidized competition, taxes, wage demands, national defense requirements, etc.

PAMPHLET

DIRECTORY OF PUBLIC MERCHANDISE WAREHOUSES IN THE CHICAGO SWITCHING DISTRICT. 20 pages. Map. Chicago & Eastern Illinois Railroad, 332 S. Michigan ave., Chicago 4. Free.

This booklet provides information on 218 public merchandising warehouses —95 of them with rail service—and keys their locations on a detailed map, which shows available rail service, as well as the size, classification and kinds of merchandise stored at each house. Tabulated in the book itself are the switching charges between warehouses and industries in the district; addresses and telephone numbers of the warehouses; the amount of licensed public storage space they offer; insurance rates on goods stored; special services on goods handled; a complete description of the buildings; and railroad and switching services available.

TRADE PUBLICATIONS

RAILROAD MAINTENANCE TOOLS. 8 pages, illustrations. General Catalog No. RR1, Warren Tool Corporation, Warren, Ohio.

Illustrates with working drawings and specifications all Warren Tool Corporation's alloy steel track tools and open hearth carbon steel track tools, and describes proper maintenance and use of the tools.

•

THE DEVELOPMENT OF AN ENGINEERING IDEA. 20 pages, illustrations. Electric Storage Battery Company, 42 S. 15th st., Philadelphia 2, Pa.

A brief, pictorial inspection tour through the Exide Engineering Research Laboratories and recently enlarged Crescentville plant.

•

OPERATION HYSTER. Form No. 1270; file folder and 16 pages. Illustrations. Hyster Company, 2902 N. Clackamas st., Portland 8, Ore.

Four brochures of four pages each, giving case histories of Hyster equipment at work in railroad freight stations and storehouses and on repair tracks.

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Remington Rand Methods News

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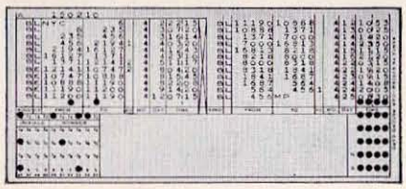

The Sante Fe now has an integrated system of fast car movement reporting and fully automatic car accounting. This entirely new and original system represents the culmination of years of study and research by the Sante Fe. Special railroad car accounting machines, designed by Remington Rand, made it possible to get the fully automatic results demanded by officials of the Sante Fe.

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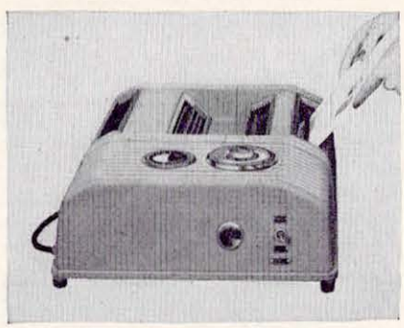

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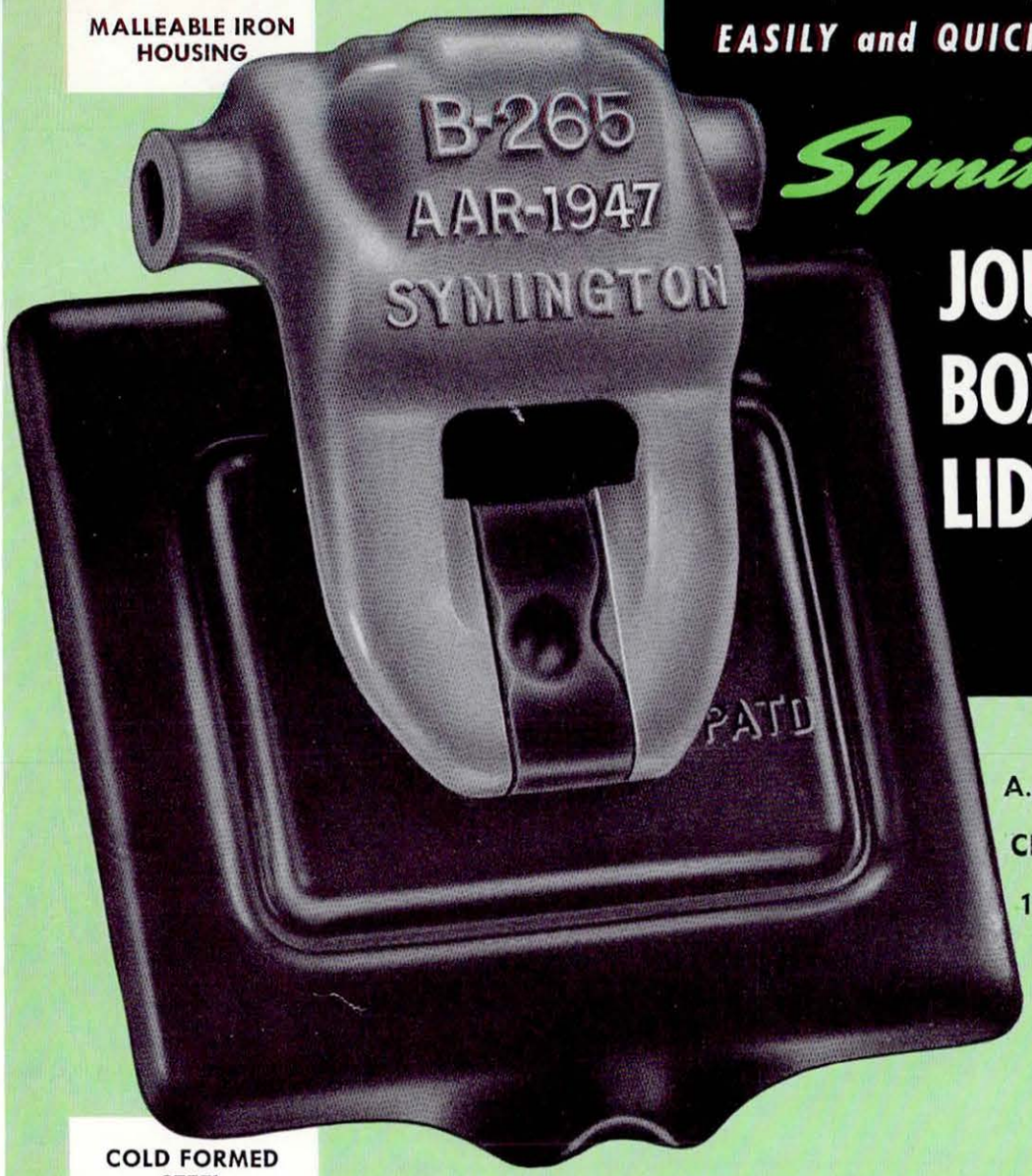

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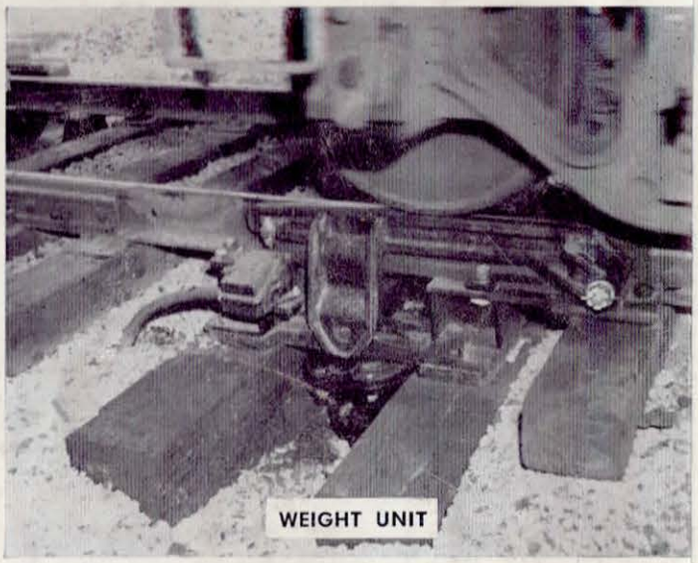

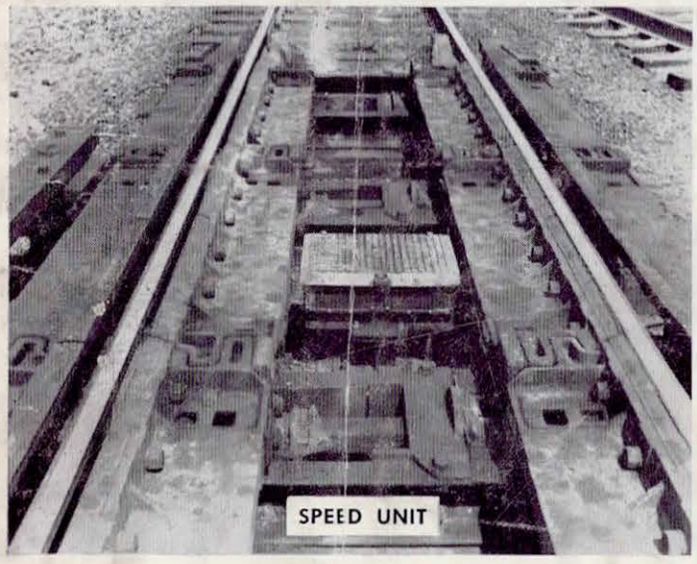

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